TIMELINE OF MOTORCYCLING

Volume Two

1900 - 1909

Compiled & edited by
Dave Richmond

Compiled, edited and written by Dave Richmond
motorcycletimeline.com

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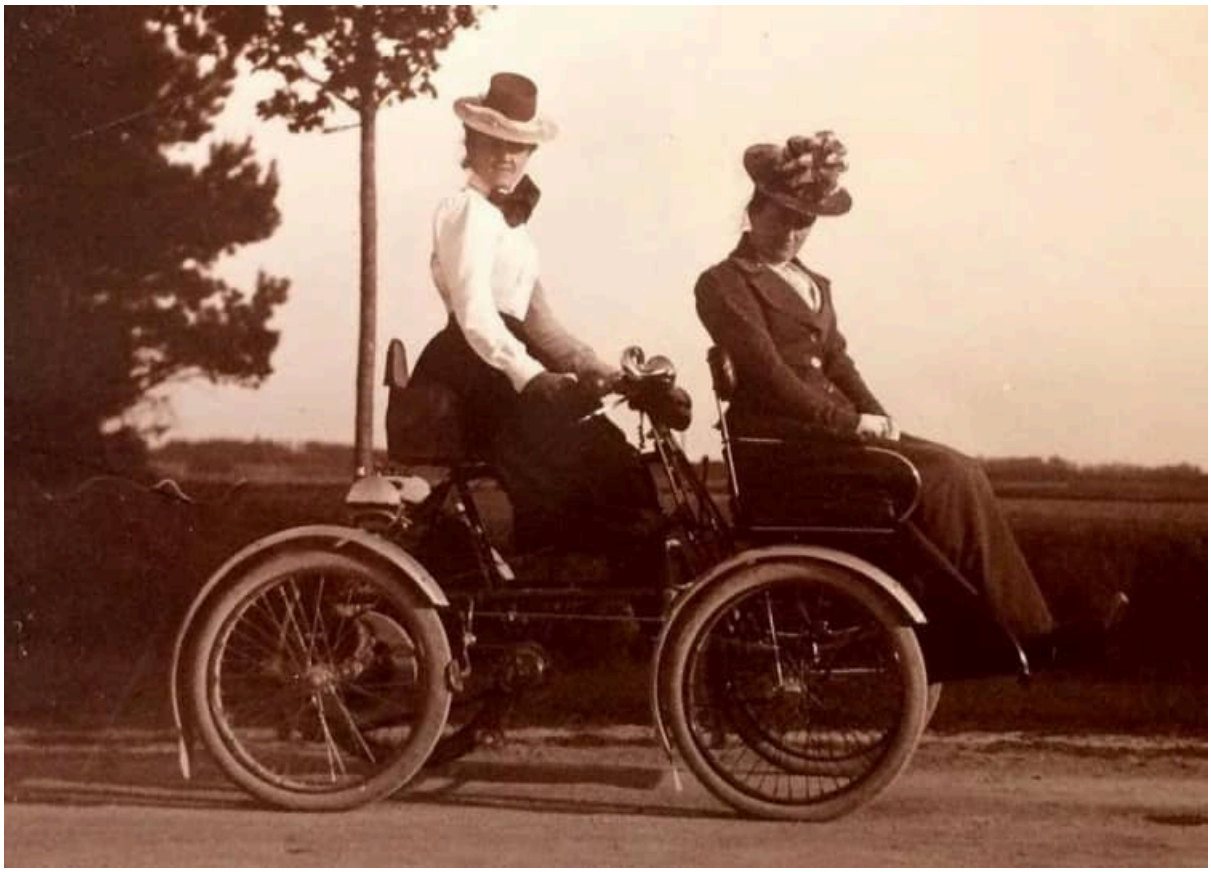
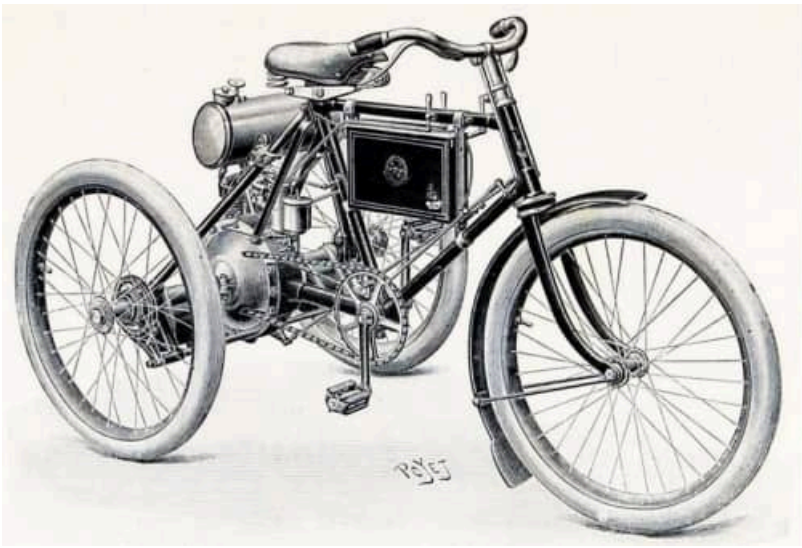
1900



We left the 19th century with a quad; let's enter the 20th century with another; in this case a 350cc AOIVtwo-speed Peugeotwith a claimed top speed of 50km/h.

WERNERSALESpassed1,000 but De Dion was the world's biggest manufacturer of vehicle engines, producing 3,200 by year's end with power outputs up to 2¾hp. In time De Dion engineswould propel up to 150 makes of car, trike and motorcycle. A complete De Dion trike weighed in at about 200lb; yours for £50.



Rochet launched a De Dion-engined trike that would stay in production for 10 years—

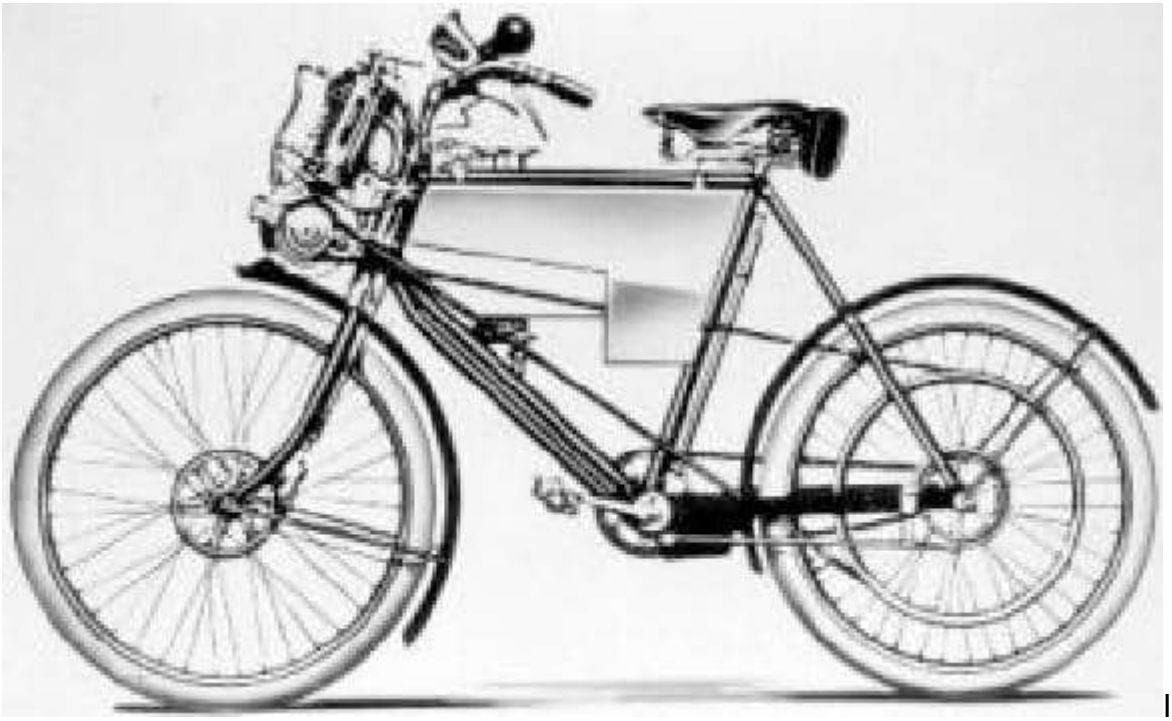
and that's was long run when vehicles were evolving so rapidly. This excellent advertising illustration is complemented by the colour pic of a restored survivor.

Here's a De Dion in action. We're in Normandy, the rider is one George Cormier and, judging by the armband, he's competing in an event.

Note the use of the word ‘motocycles’ in this ad. Therig looks neat but madame would have bene□ðtedfroma veil and lap cover.

At the start of the new century the Werner brothers stopped buying De Dion engines and started making their own; and they patented a frame with the engine where the pedals used to be.

FOLLOWINGATRIPTOPARISto buy a motor cycle, a British pioneer rider wrote: “The De Dion Bouton □ðrmonlyrecommend motor bicycles to be ridden in □ðneweather,as they consider it dangerousto ride on wet surfaces or through traīic…It is all right when you are riding straight ahead, with both wheels in the same straight line, but in turning corners, or even to avoid anything on the road, it is extremely dangerous, as it stands to reason that any wheel driven by motive power has a strong tendency to skid and bring down the maihine…”Itis simply courting danger to cross wet places and damp spots on the road…I can only give them the advice my French friends gave me, ‘Me□ðezvoius, c’est tres dangereuse’ (Takecare, it is very dangerous).”



In Germany the □ðrstAdlersrelied on De Dion engines □ðttedoverthe front wheel.

IN 1893 CHARLESHMetz set up the Waltham Manufacturing Co in Massachusetts to make Orient bicycles; by 1898 he was running a racing team and, to help train his cyclists, he ordered built a tandem pacer with the pilot sitting up front and the passenger operating a French-made Aster copy of the DeDion-Bouton engine (Aster became a leading supplier, producing a range of stationary engines as well as powering bikes, trikes, cars, boats and in due course, aircraft). The tandem was a great success, and before long Metz was experimenting with a heavy-duty version of the Orient bicycle powered by an Aster/DeDion-Bouton engine. In 1900 he launched the Orient-Aster motor cycle (though our American cousins referred to them as ‘motocycles’).

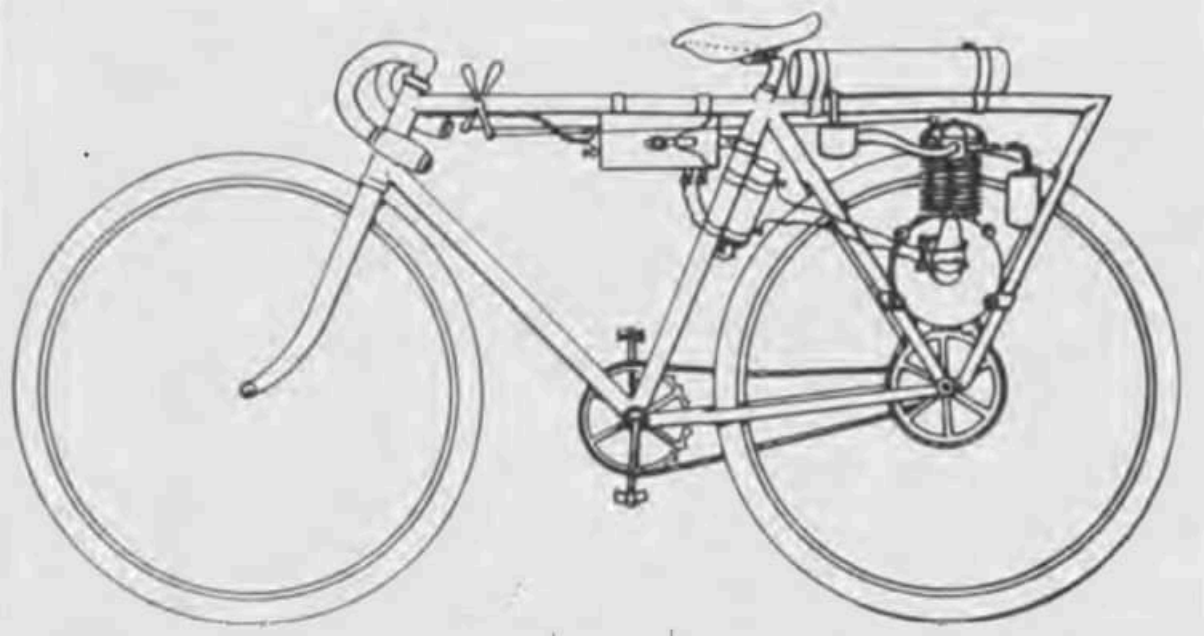
Charles Metz powered up a tandem as a cycle pacer; then he had an idea…

It was early days for model names but Metz christened this beauty the Light Roadster.

HARDON ITSheels came the Columbia, built by Pope using the company's own IOE single in one of its bicycle frames. And the Holley bothers, Earl and George,set up the Holley Motor Company, making IOE motorcycle engines in Bradford, PA; sales were disappointing so they began to make and sell complete motorcycles. Rather than use

bicycle frames Earl and Georgebuilt their frames from scratch, mounting the engine low in place of the pedals.

IN NEWYORKSTATEasurgeon named Edward Clark, helped by a local bicycle assembler named Brewster, built his own engine and □ðtteditto one of Brewster's bicycles. "It lacked the power suīicient to ascend gradesover 3% unaided", he admitted. Undeterred Clark bought a clip-on 'Acme' engine (qv Wile E. Coyote) made by Palmer Brothers of Ohio. He tried, and failed, to patent a sub frame to carry the engine, fuel tank, carb and silencer, thus keeping the engine heat away from the rider. Also, he claimed, "the whole can easily be removed in two minutes, leaving an ordinary safety bicycle, ready for riding." In any case the motorised bike was said to do 35mph and 200mpg.

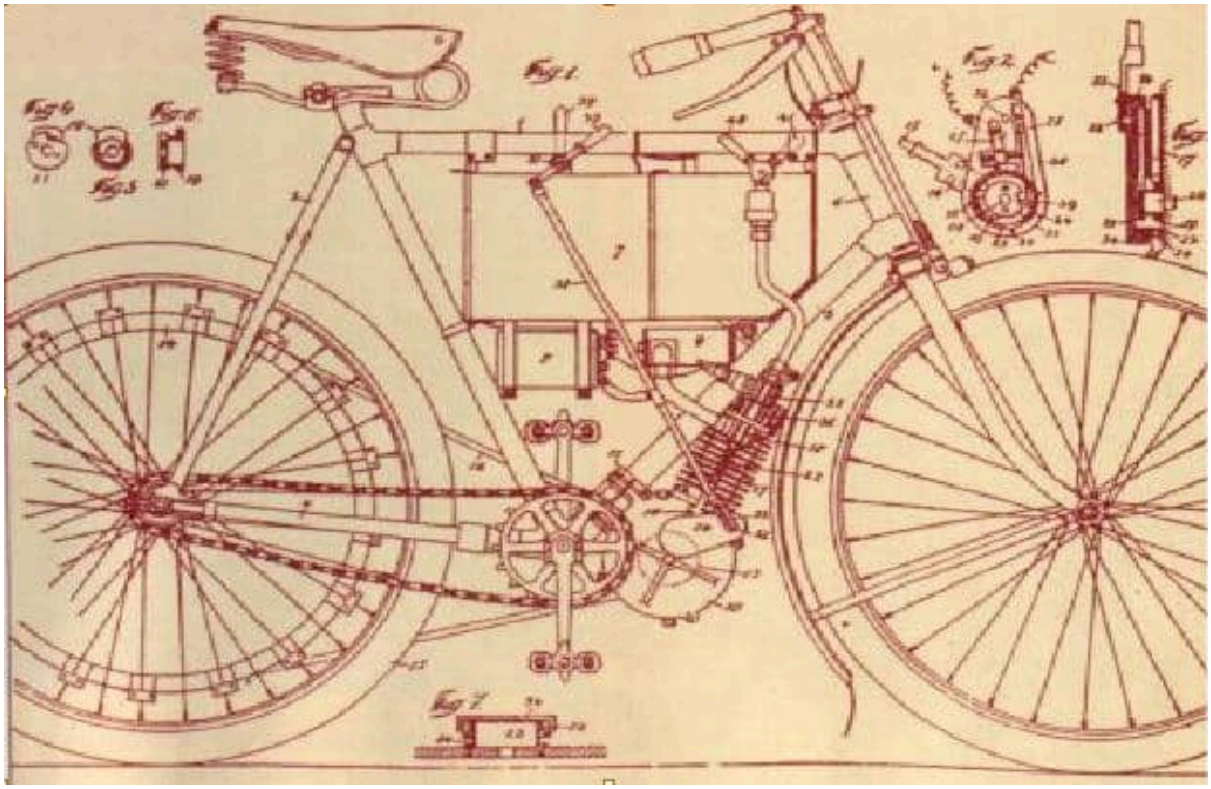


Edward Clark's motorcycle combinined a Brewster bicycle with an Acme engine, mounted on his own design of subframe, driving the rear wheel via a chain.

REX,CHATER-LEAand OK (later OK-Supreme, OK?)debuted; there were now about 50 British marques.

S DE JONG& CO OF Antwerp □ðtteditsMinerva bicycles with 172cc/¾hp ZL clip-on engines. Theywere a great success so Minerva copied the ZL engines and made its own: it also sold them to other bicycle manufacturers.

Minerva bicycles took to the road with clip-on ZL engines.



The 172cc (56×70) ZL engine was rated at ¾hp. It featured a surface carb, automatic inlet valve and 4V accumulator/trembler-coil ignition.

AMERICAN FIRMS made 1,681 steam, 1,575 electric and 936 petrol cars.

IN CLECKHEATON, WEST Yorks, Joah Carver Phelon and his nephew Harry Rayner used a (1¾hp) De Dion in their Phelon & Rayner motor cycles but they patented the use of a sloping engine to serve as the downtube of an adapted bicycle frame. They also pioneered chain drive but could not aīord to go into production so the design was licensed to Humber, which would produce it as the Humber Beeston until 1907. The sloper design would be in production for more than six decades.

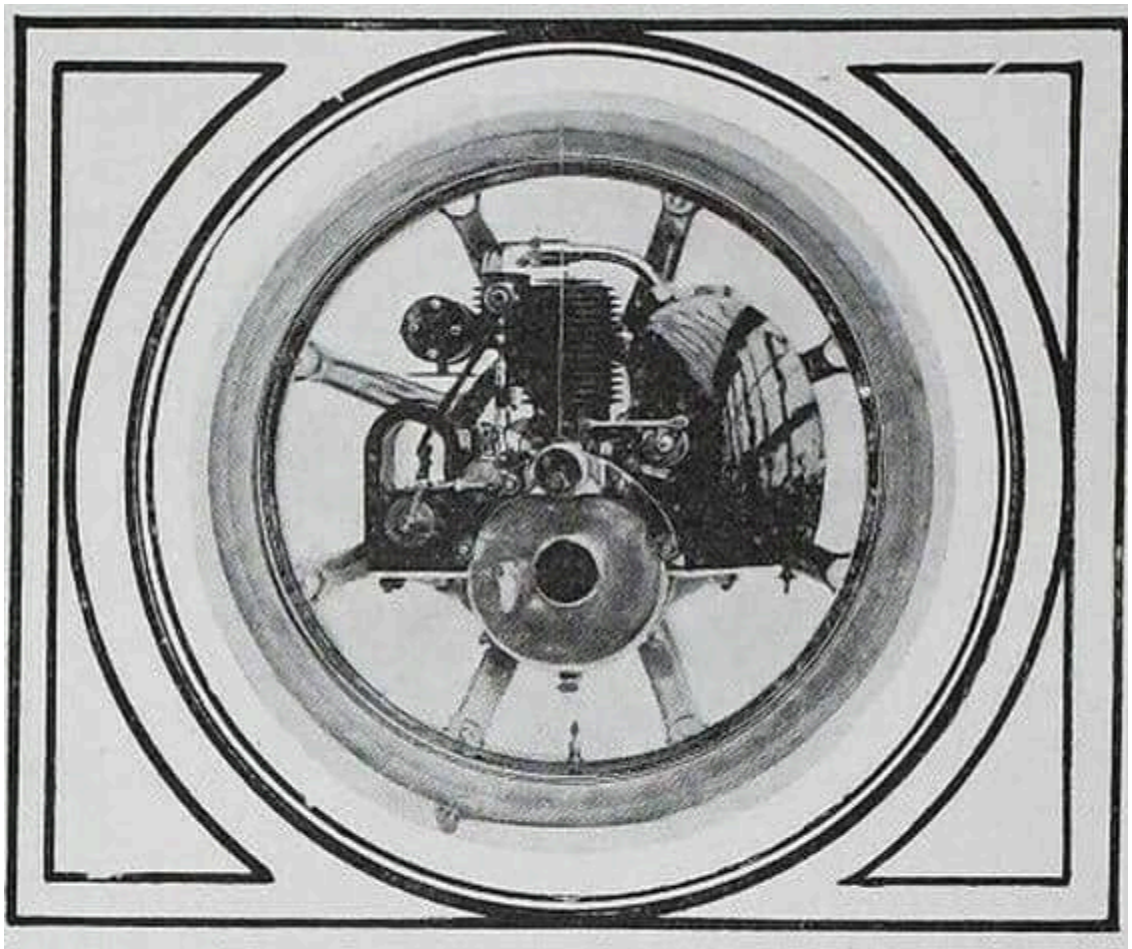
The classic sloper design that was the mark of some of the best motor cycles the world has ever seen.

A US REPORT estimated there were about 10,000 automobiles on European roads owned by 7,000 enthusiasts—5,600 of them in France, which boasted 619 vehicle manufacturers and parts suppliers, 1,095 repair shops and 3,939 stockists. By way of contrast, the report concluded: "If we put the number of automobiles in this country at 700 it will probably be an exaggeration. The number of makers actually at work or organizing is probably no more than 100."

SINGER, which had been making bicycles since the mid-1890s, went into the motor cycle business by snapping up Coventry-based Perks and Birch which had developed a 'motor-wheel'. This comprised a 222cc 2hp engine built into an aluminium wheel and featuring a surface carb and low-tension mag.

Rather than clip an engine to a □ðimsybicycleframe, enthusiasts could buy Singer ‘motor wheels’.

“THE SINGERCYCLECO,ONEOF the oldest cycle-making companies in the world, and the last of the British houses to evacuate the American market, is the □ðrstimportant maker to take up the motor bicycle; they are using the Compact motor, the mechanism is all contained in the rear wheel. The □ðrstSingerbicycleof the sort was recently given a trial in Coventry, and the motor bore out the previous good reports of it. Of the machine Henry Sturmey says: ‘The bicycle is perfectly made and □ðnished,andisunquestionably the handsomest motor bicycle that we have ever seen. All who tried the machine were struck with its extreme ease of management…duringthe trial at Coventry several ran about on the machine who had not previously attempted motoring in any form.”

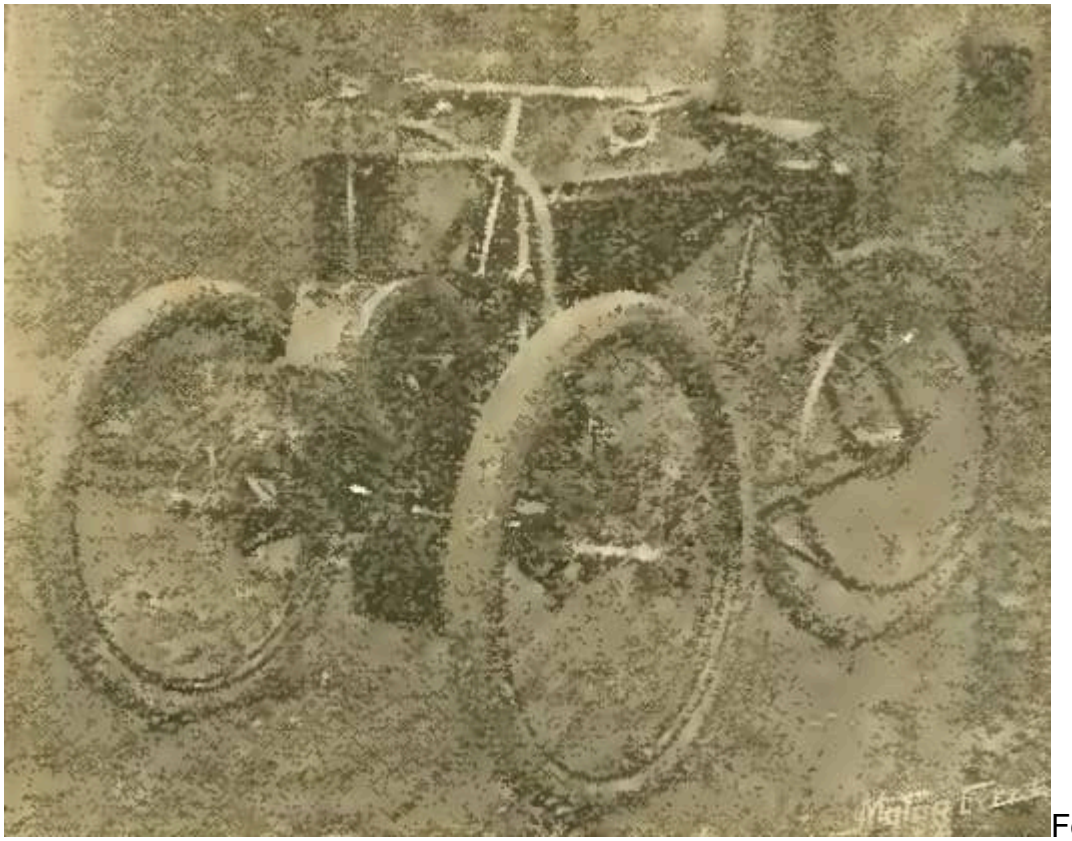


This shows the interior arrangement of the new motor cycle wheel. It is fitted to the front wheel of a tricycle and the back wheel of a bicycle

ENTREPRENEURANDdiplomatEmil Jellineck was a major distributor for Daimler and Maybach. He sponsored and speci□ðedarevolutionarysports car to be named after his daughter, Mercedes. So if she'd had a diīerent name yuppies might still be boasting about their Brunhildes or Ermintrudes. Here's another whimsy: 40 years later Hitler was swanning about in a huge armoured Merc. You have to wonder if he knew Emil Jellineck's dad was a rabbi—Adolph's favourite motor was named after a Jewish princess.

Mercedes Jeillineck.

Glover Bros of Coventry built a tidy two-wheels-at-the-front trike. The □ðrmmadeitsown engine, which it mounted over the front axle; the trike boasted a spring frame, Ackerman steering, belt drive, drip-feed lubrication, coil ingnition and a valve-lifter controlled from the handlebar.

 For its time the Glover trike was state of the art.

THE AUTOMOBILE CLUB (the 'Royal' comes later) staged a 1,000-mile reliability trial. Motor cycles were still in the experimental stage with only a few imported examples in the country. Two brave riders on front-wheel drive Werners entered but were not among the 65 starters. However the cars were joined by a 3hp Ariel quad; a 2¼hp Ariel trike with Whippet trailer (a lady's bicycle frame without the front fork but with the rear wheel and pedalling gear to help on the hills); another Ariel trike sans trailer; a 2¼hp MMC trike; and a 2¾hp Simms motor wheel (a tricycle with two wheels in

As well as the 1,000-mile trial Singer proved its trike's strenth with a 32-stone load.

front, one behind, front driving, rear steering). They left Hyde Park on 23 April, ending Day 1 at Bristol. Day 2, on show in in Bristol. Day 3, Bristol to Birmingham via Cheltenham where the vehicles were displayed. Day 4, on show in Birmingham; Day 5, Birmingham to Manchester via Matlock and some serious hills (during which AJ Wilson, with a little LPA on his Ariel trike, beat a Panhard driven by the Hon CS Rolls which was then the fastest vehicle in England). Day 6, on show in Manchester. Day 7 was a Sunday which in those days really was a day of rest. Day 8, Manchester to Kendal with hill

climbing on Shap Fell. Day 9, Kendal to Carlisle with hill climbing on Dunmail Raise. Day 10, Carlisle to Edinburgh. Day 11, on show in Edinburgh. Day 12, Edinburgh to Newcastle upon Tyne (in the teeth of a gale along the Berwickshire coast). Day 13, on show in Newcastle. Day 14 was a Sunday. Day 15, Newcastle to Leeds via York where the vehicles were displayed. Day 16, on show in Leeds. Day 17, Leeds to Sheffield via Harrogate and Bradford where the vehicles were displayed. Day 18, on show in Sheffield. Day 19, Sheffield to Nottingham (but some of the vehicles diverted to Welbeck for a speed trial in which the Ariel and trailer came third with the Century tandem sixth). Day 20,

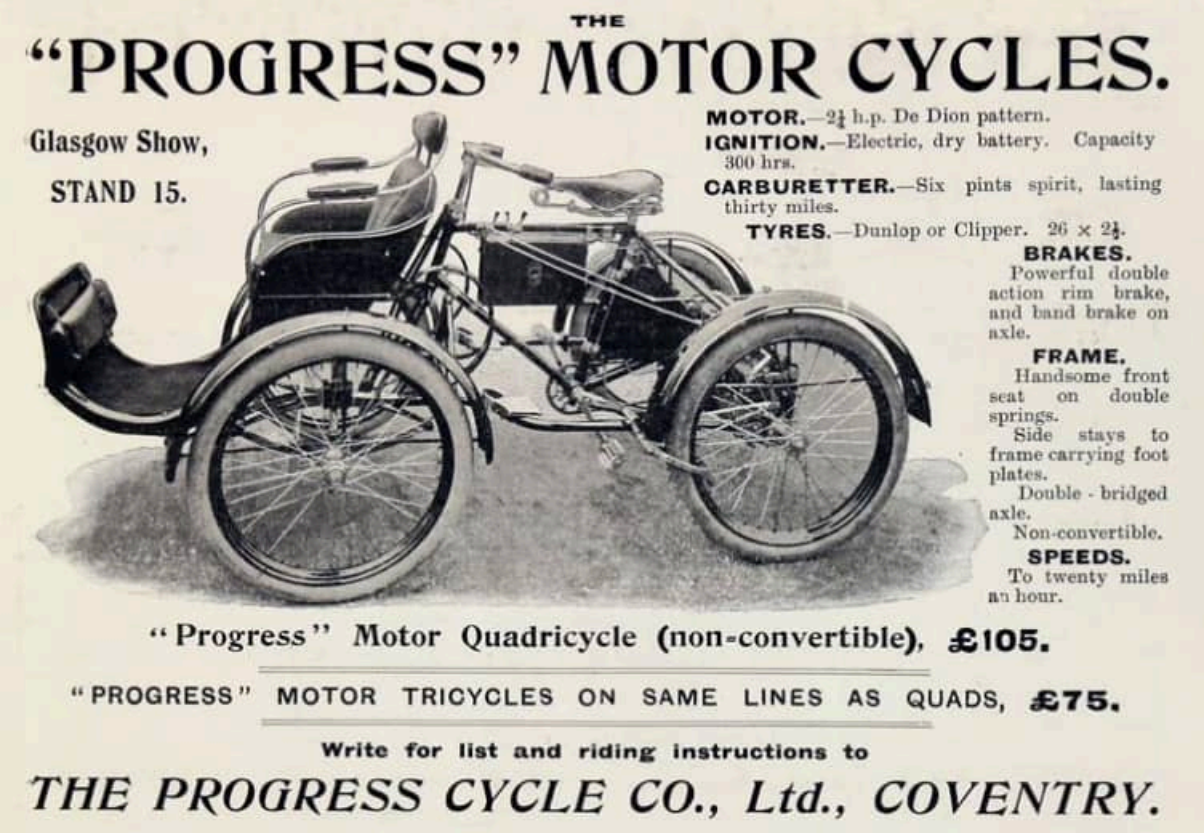
Fettling the Simms Motor Wheel.

Nottingham to Marble Arch via Northampton (a run of 124 miles). There was also a champagne breakfast hosted by Viscount Northcliffe at Calcot Park, Reading; a dinner at the Birmingham Conservative Club hosted by Alfred Bird, MP; and other social events at Manchester and Edinburgh. The 1,000 Mile Tour was designed to publicise motoring and in that it succeeded. Thousands of spectators lined the route; most of them seeing motorised vehicles for the first time. The towns they passed through were packed, to the extent the vehicles had trouble passing through them. The show days were essential for running repairs. The survivors in the (almost) motor cycle class were the Ariel quad, the Ariel trike and trailer, the Century tandem, the Empress trike and the Enfield quad. CS Rolls won the speed trial in his 12hp Panhard at 37.63mph which was officially the fastest vehicle in England—a De Dion-Ariel trike and trailer came fourth at 29.45mph. And on Birkhill, acording to Autocar, "the Ariel quadricycle, Ariel tricycle with trailer, Enfield quadricycle, and Mr Rolls's Panhard achieved the same result." So while solos were not yet up to such a demanding event, the trikes took on the best automobiles and gave a taste of triumphs yet to come.

The Century Tandem and Ariel Trike and Whippet trailer during one of the show days.

MMC TRIKES SUBSEQUENTLY proved their worth in a more demanding environment when a detatchment went to South Africa to do their bit in the Second Boer War.

THERE WERE TWO major cycle shows, the National at the Crystal Palace and the Stanley at the Agricultural Hall, Islington. They were run simultaneously; both, according to the Autocar, featured "exhibits of autocars, motor cycles, □ðttings, and accessories". At the Stanley, for example, Alfred Dunhill's exhibit included "a new waterproof gauntlet glove lined with wool. He has brought this out in response to numerous enquiries for a glove of this description, and we, from personal use, can speak of it as most comfortable, as it gives a maximum of protection from damp and cold with a minimum of clumsiness. One of the most interesting Dunhill novelties consists in some new puncture-repairing patches. These are made simply of two layers of pure rubber in such a way as to prevent curling. Petrol is the only thing required in using them, and when applied they not only stick to the air tube, but □ðllup the punctures as well. They should do much to dispel tyre troubles…The Motor Clothing Co will show some motor garments in which a specialty is made of extra thicknesses of cloth and leather over the chest. Also similar garments for ladies' wear, and some very smart lines in liveries for motor servants…Brown Bros will show the Brown motor tricycles and quadricycles, the Brown-Whitney steam carriage, motorcycle frames and □ðttings, motors, repair parts and an immense varied collection of motor accessories…The En□ðeld Cycle Co will have their tricycles


THE
"PROGRESS" MOTOR CYCLES.
Glasgow Show,
STAND 15.
MOTOR.—2¾ h.p. De Dion pattern.
IGNITION.—Electric, dry battery. Capacity 300 hrs.
CARBURETTER.—Six pints spirit, lasting thirty miles.
TYRES.—Dunlop or Clipper. 26 × 2¼.
BRAKES.
Powerful double action rim brake, and band brake on axle.
FRAME.
Handsome front seat on double springs.
Side stays to frame carrying foot plates.
Double-bridged axle.
Non-convertible.
SPEEDS.
To twenty miles an hour.
"Progress" Motor Quadricycle (non-convertible), £105.
"PROGRESS" MOTOR TRICYCLES ON SAME LINES AS QUADS, £75.
Write for list and riding instructions to
THE PROGRESS CYCLE CO., Ltd., COVENTRY.

As well as the two London shows there was a Glasgow show in 1900; as this ad shows a 'motor cycle' could have more than two wheels.

and quadricycles with several recent improvements added…In addition to motor eye-shields, new pattern horns, a new patent induction coil, and a new carburetter for De Dion tricycles, SW Gamage will exhibit ear-guards, foot-muīs, sparking plugs, acetylene, oil, and candle lamps, together with a large assortment of specialties in autocarist garments. A particular object of interest will be the chauīeur's 'Combination' garment, which will do equal duty as a rug or overalls…Hoare and Sons will show the special 'Autocoat' and 'Autosuit' for those who follow automobilism. We can vouch for their being suitable in every way for the purpose for which they are built. The garments are absolutely wind and rain proof, no matter the force of the gale or the downpour, and are stylishly made with al in the best material…Humber will have quite a number of machines from motor tricycles and quadricycles upwards…CLohmann will have the Perfecta acetylene lamps made in large sizes for motor cycles, motor cars, and carriages…The Motor Carriage Supply Co will show the new 3½hp Simms voiturette ðttedwiththe Simms-Bosch magneto-ignition…Roots and Venables will have the only machine in either show burning ordinary paraīin…Swain Patents Syndicate will show a very interesting motor cycle tyre. It has neither wires nor thickened edges, and is held on the rim by the patented method in which the lining is woven…Bentonand Stone, Bracebridge Street, Birmingham. The exhibitors are actual manufacturers of in ðators, reservoir tanks, and kindred articles, and they make a good show of them. The motor cycle reservoirs are constructed with steel barrels and steel bands, and the swivel

fastenings are made specially strong…Bowden'sPatents' Syndicate. Theclever Bowden mechanism has hitherto been applied principally to cycle brakes, but the time is doubtless not far distant when the general engineer will wonder how ever he got on without it. Themechanism is already being made in various strengths for motor work, and is covered □ðrstwithawaterproof material and then with a German silver wire. A simple exhaustlifter is introduced for use on motor cycles. A lever pivoted at one end engageswith the cotter in the valve stem, and is operated by the Bowden cord from a small lever on the handlebar. It can be readily □ðttedbytherider without any drilling or like operations. TheBritish and ForeignElectrical Vehice Co are exhibiting the 'Powerful' car which took part in the recent trials and the run to Southsea, making a very good impression on those who saw it. It is an immense vehicle, and as at present constructed only carries two passengers,which seems rather a small result for two and a half tons of mechanism, but it is really only an experimental vehicle…Benet□ðnk&Cohasnow extended its motor department to the length of motor cycles, and it has made a most excellent selection in the Ariel. We can only emphasise our opinion that the Ariel motor cycle is second to none in the world…WCanning & Co is showing a combined motor and dynamo arranged on one shaft and forming a generator for charging accumulators…It can be made entirely automatic, so that when the accumulators are charged the current is cut oī. Thestarter is provided with a 'no load' release, so that there is no danger of injuring the motor when switching on the current…TheChurchbank Cycle Co: Some wooden wheels are shown □ðttedwithGare's tyre. This consists of an iron tube with an eccentric hole

ILLUSTRATION OF LADY'S MACHINE, BUILT WITH B.S.A. SPRING FRAME.
NOTE.—The Company do not supply Complete Machines.

As this BSAad remind us, not only were they not yet in the motor cycle business—the Brummies did not even supply complete bicycles. But they did manage a sprung frame.

laid in a bed of rubber. The hole is □ðlledwithrope. The tyre is said to be both silent and wear resisting…TheCryptoWorks: A sample of the Lawson motor bicycle is exhibited. The motor proper is mounted on one side of the front wheel, being balanced by the □ðywheel,whichisarranged on the other side of the wheel. A strutted fork is employed, and the ring post of the strut carries a tank which holds a gallon of petrol, and also a supply of lubricating oil. The motor is of one horse-power, and has incandescent ignition. The handle-bar is carried on a strong loop spring…TheEn□ðeldCycleCo, Redditch: Three motor cycles are exhibited; the surface carburettor has given place to one of the Longuemare type, and we have no doubt that the alteration will be found a considerable improvement. [At this time a 'motor cycle' might have two, three or even four wheels.] AW Gamage: Some large bells are well calculated to eīect the purpose of the horns in a more pleasant way. In the electric department we notice Peto and Radford's batteries, and the Reclus incandescent sparking plug; also a clever little instrument for sorting out the poles when one gets the wiring mixed up. There are some excellent jackets and overcoats, with skin inside, outside, or in between, with and without the fur in situ. A good show, truly. Gibbs' Auxiliary Power (Cycle) Syndicate: This

is hardly a motor exhibit in the ordinary sense of the word, but the safety bicycle shown is intended at some period of its progress to be propelled by compressed air. The front wheel axle is provided with two cranks connected to pistons in oscillating cylinders with suitable connecting rods. On going downhill the cranks are set to work and air is compressed into the main tubes of the frame, which act as a reservoir. On coming to a rise the valves are reversed, causing the compressed air to drive the cranks and front wheel. A device is □ðttedforregulatingthe power at which the compressed air shall be utilised. Under ordinary circumstances a charge of air will last about half a mile. Iliīe, Sons and Sturmey: This □ðrmhavethelatest issues of The Autocar and other publications of interest to the automobilist, such as Motor Cycles, On an Autocar through the Length and Breadth of the Land, Horseless Vehicles, and Lacy Hillier's cycle and motor novel, The Potterers' Club…Joseph Lucas: This noted lamp □ðrmhavenotyet produced a special motor lamp, though they are by no means neglecting the matter. Meanwhile, they recommend their Holophote cycle lamp for use on motor cycles, as it is well calculated to stand the vibration…TheMeyraElectric Co: Meyra batteries are calculated to work for some three or four hundred hours—practically a whole season. Theyare made throughout of British materials, and the company make a fair allowance for discharged cells in Dart payment for new ones…Powell&Hanmer: In addition to carriage lamps of the ordinary pattern some motor cycle lamps are exhibited, one pattern having the spring handle at the side and another at the back. In the latter case the red light is □ðttedintheback of the lamp in accordance with the legal regulations…HW Van Raden: Mr Van Raden's woven glass accumulators are attaining a very high reputation, and have been recognised by such large users as the Post Oīice…into a warp of lead wires spun glass is woven as a weft, and this forms a grid which holds the paste. Thewhole plate thus constructed is wrapped in an envelope of spun glass, the positive and negative plates being of identical construction, so that the current can be reversed from time to time. An exceedingly neat little dynamo is shown which may be run oī a □ðy-wheeltokeepthe accumulators charged. Another battery is combined in one case with a coil, and forms practically a rotary magneto, so that with a very small expenditure of power the rider is saved from the trouble so frequently attending batteries. This device deserves very close attention, and seems one of the best solutions of the sparking diīiculty."

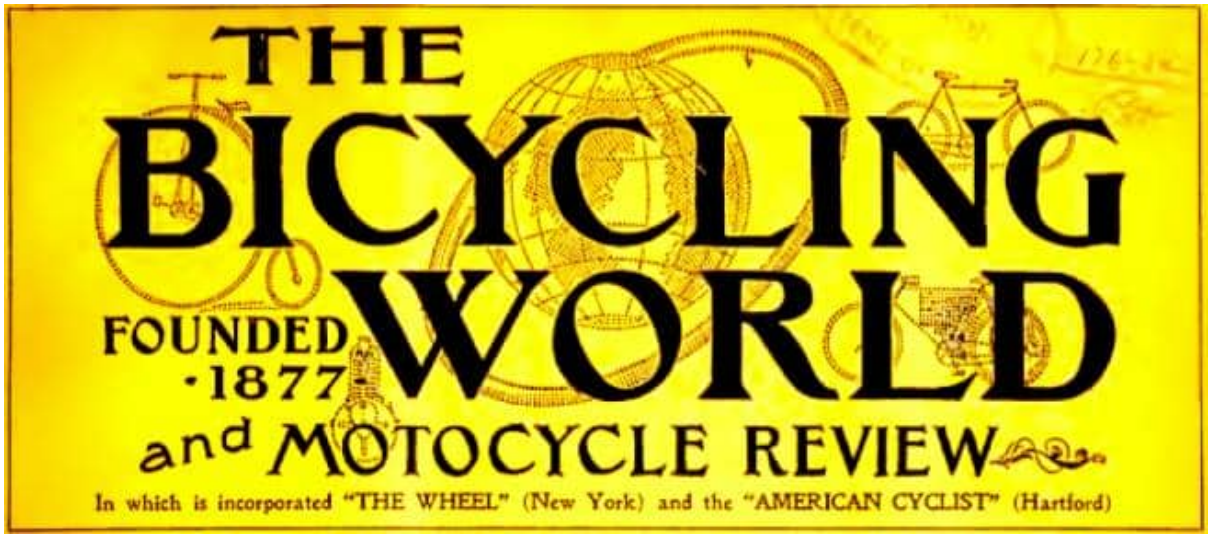
This □ðremenwasclearly proud of his motor cycle.

BSAWASN'TTHEONLYarms manufacturer to take an interest in bicycles. TheMiyata Gun Works opened a factory in Tokyowhere it also repaired bicycles for foreigners (bicycles in Japanwere known as 'foreign vehicles'). Realisingthey had the materials and facilities to make, as well as repair, bicycles, a team of Miyata engineersdid just that, using the same tubing they used to produce ri□ðebarrels.Everythingexcept the tyres was made in-house. Thecom[any subsequently stopped making armaments to concentrate of bicycles and was renamed Miyata Manufacturing.

FRENCHWATCHMAKERJEANConstantin teamed up with a M Cabanes to design and manufacture a 1½hp (approx 250cc) engine with a spray carburettor which revved up to 2,400rpm. Theyduly bolted one into a bicycle frame, mounting it horizontally because Constantin believed this would minimise engine vibrations felt by the rider. Drive was by chain rather than belt; the chain could be tensioned by loosening and turning the left crankcase plate. Claimed top speed was about 28mph. Constantin's machine was put into production by Rouanet and Co in Saint-Chinian in the South of France; it won a gold medal at the International Exhibition in Montauban. Fewerthan a dozen were built, of

which a few had strenthened frames and forks. Two complete machines and an engine have survived.

About a dozen Constantins were built; two survive.



"TO THE SEEKER After knowledge concerning the motor bicycle no better advice could be given than to go, if possible, to John Robbins, experimenter and successful demonstrator of the entire practicability of this latest entrant in the wheeling □ðeld. To Mr Robbins, who is the Waltham Manufacturing Company's motor mechanical expert, is due much of the credit for the successful debut of the Orient motor bicycle. In conjunction with his chief, President Metz, he worked long and faithfully both on the experimental machines—of which there were several, some of them imported—and on the successful one. Frequently the two were to be seen together, sans coats and with sleeves rolled up, discussing some knotty point or testing the eīicacy of its solution;

while test after test was made, many of them with excellent results, but all discarded because there still seemed room for progress. At the beginning Mr. Robbins says he was not more strongly prepossessed in favor of the motor bicycle than were many other experts. He thought it would go all right, and that, under certain conditions and with some restrictions, it would prove practicable and a permanent addition to the motor vehicle family. But even in going this far he was troubled with not a few doubts and misgivings; and he looked forward to the day when they should be resolved and he should know just how near the machine would come to the expectations formed of it by the public. The early experiments added strength to these doubts. The attempt was made to adapt the ordinary bicycle, with the least possible change, for the purpose desired. Various places for the motor and other parts were tried, while use was made of a chain for the purpose of driving the machine. The results were but half-way encouraging. The machine would run, and run fairly well. But it was by no means an ideal machine, and many of the faults attributed to it by its critics were present. The consequence was that the experimental machines were consigned to a corner of the experiment room—a place much frequented by President Metz, and over the door of which is posted the legend, 'No admittance except by order of the president'—and a fresh start was taken. An entirely new frame was designed and constructed, special reference being had to the most desirable place to put the motor and other working parts. The result was the special-shaped frame, with its extra long wheel base, which has since become familiar to the public. The next step was to decide upon a method for transmitting the power from the motor to the bicycle. One of the chief objects sought was the elimination—or, at least, the reduction to a minimum—of the excessive vibration so noticeable in many machines driven by gasolene motors. A belt running upon a □ðange attached to the rear wheel was experimented with and found to work like a charm. A method of tightening and loosening the belt was adopted, and then the machine was practically □ðnished. Its trial trips—both on the road and track —were eminently satisfactory. Speed and power were there in plenty, yet the faults so freely prophesied as accompanying all motor bicycles were, in spite of the high-powered motor, either entirely absent or reduced in such degree as to be scarcely noticeable. As may be imagined, this pleasing fact was shortly made plain, and preparations were soon under way to turn out the machines on an extensive scale. Through these various stages of development it was to Robbins that the bulk of the practical work of riding and testing the new machine fell. He performed the work in a thorough manner, and soon came to know the peculiarities, the good and bad points, of the machine like a book. His opinion of it, gathered during a running conversation, punctuated by numerous questions regarding salient features, is best expressed in this free rendition of his own words: 'The people who criticise the motor bicycle, and □ðnd all manner of fault with it, are talking about something they know absolutely nothing about. Entirely outside of the fascination of the machine, due to the presence of the motor, there is this to be said for it: It falls behind the ordinary bicycle in no essential particular, and possesses some

points of superiority over it, viewed as a bicycle pure and simple. It may be natural to suppose that certain faults and shortcomings would develop, but an extended test of the machine makes it plain that this is a mistake. 1 have been riding a bicycle for a dozen years or more, beginning with the old high wheel; and for nearly a year I have been using a coaster-brake machine, which possesses a few of the advantages of the motor bicycle; and I say without the slightest hesitation that, taken as a bicycle alone, the latter is not one whit behind the man-driven machine, while the motor simply takes away the grounds of complaint of the former and makes it a machine that will appeal with the greatest force to all users. How does the machine handle, and especially on slippery roads? Even better than an ordinary bicycle. It steers better, in the □ðrstplace; I suppose this is due to the fact that the feet are stationary and do not have a tendency to de□ðectthefrontwheel from a straight line. In crossing car tracks or other obstructions there is danger of slipping unless they are taken at the right angle, just as there is with the regulation machine; but it is not any greater than in the latter case. A little more care is required in mounting and dismounting, of course, but even here there is no trouble to speak of. Even when walking and trundling the machine the diīerence is not so great as would be supposed. If the machine balances properly, as it should, it will maintain its equilibrium as long as it is kept upright. Anything more than this could hardly be asked of it. How about vibration, heat, smell and noise? None of them are suīiciently noticeable to the rider to be objectionable. In fact, they make a much greater impression on spectators than on the rider. The latter gets on the machine and starts oī, giving not a thought to such things. The heat should be felt, apparently, but it isn't. Whether this is owing to its being dissipated by the rapid progress of the machine I can't say, but it is not improbable. The noise and smell are likewise troubles that are more imaginary than real. Whether it is the fact of being in motion that robs them of their unpleasantness I don't know; but it is certain that they bother me very little. The noise is an accompaniment that I like, for it tells me that the motor is working right, and I give no further thought to it. The smell could well be dispensed with, for it has no soothing eīect; but, as I said before, it does not bother me. Now, to come to the greatest theoretical objection to the motor bicycle—the matter of vibration. I don't know so much about other makes, but with ours we have got the vibration question just where we want it. In fact, there isn't any vibration to speak of, and any one who tries one of our machines and expects to □ðnditisgoing to be disappointed. With the chain, as used on our □ðrstmachines, I will admit that there was plenty of vibration. It was largely for that reason that the chain was discarded and the belt put in its place. We saw that it would not do. The rider would have been shaken to pieces, and the machine, too, for the matter of that. We tried the belt and it worked like a charm; so we knew we were all right there, and beyond the perfection of some details it will remain as it is on the □ðrst machine. No, the question of vibration is not bothering us at all. In fact, from an experience based upon an exhaustive test of the machine, extending over a number of weeks, during which I covered three or four hundred miles of all kinds of riding, I have no

hesitation in saying that we are pretty well satis□ðedwiththemachine. And Robbins's face wore a very satis□ðedlookinsupport of this declaration."

"THAT THEMOTOCYCLEBRINGS1,000MILESin 24 hours within the range of probability the recent Paris-Toulouse road race demonstrated. Teste, the □ðrstmotocyclist,on a 7hp tricycle, covered the distance, 1,440km (over900 miles), in 29hr 5min 3sec, an average of well under two minutes per mile for the entire distance—a marvellous performance."

"LC HAVENER,THEWORCESTER(MASS)DEALER,isan inspiring example to his fellows. Within the past six weeks he has sold three motocycles, and he has other sales that are rapidly ripening."

"AFTERCONSIDERABLEEXPERIMENTATIONANDDELAY, George M Holley, of Bradford, Pa,who recently turned his business into the Holley Motor Company, has his promised popular-priced motor bicycle readyfor inspection. Themachine diīers materially from anyof the others that haveseenthe light, and if it bears out the claims made for it it will play no small part in hastening the motocycle era. Theposition of not only the motor, but of the oil tank, the battery and the rest of the motive power, is in itself no small departure, and one that givesthe machine a clean and compact appearance, while the use of the familiar chain and sprocket gearinginstead of the belt and pulley is another item that will command attention. Mr Holley claims the 1¾hp motor weighsbut 24lb. It is aīixed to the frame by clamps, and may be detached, the inventor claims, in □ðve minutes or less. Themotor is of the four-cycle gasolenetype, air cooled, and is supplied with either electric or tube ignition, as preferred."

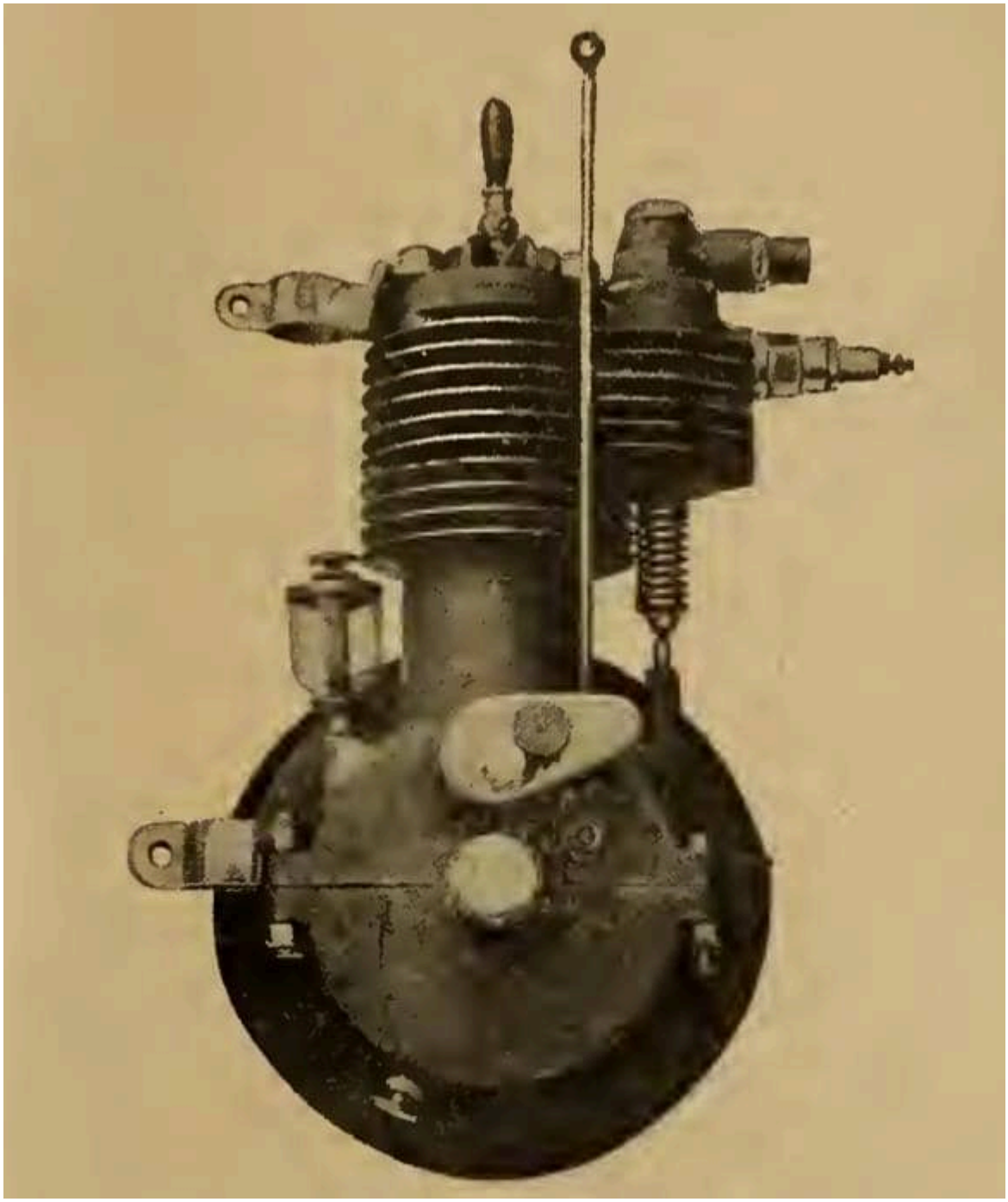
TheHolley was very much a bicycle with an engine, and a tidy job it was too.

"ALTHOUGHIT IS DIFFICULTTOUNDERSTANDwhyit should be the case, some of those making or about to make motocycles report that a too generalimpression is abroad that the term 'motocycles' is meant to de□ðnemotorbicycles.One of those interested states that he has been obliged to do considerable letter writing to explain away this notion.

Why the idea should obtain none can say. Certainly the term 'motocycles' seems broad enough to make its meaning clear. It includes any form of cycle □ðttedwithamotor, whether bicycle, tricycle, tandem, triplet or quad. Each is a motocycle; collectively they are motocycles. If a motor bicycle was in mind it would be termed a motor bicycle; if a motor tricycle, it would be called a motor tricycle. Thematter seems so very simple as not to require mention, but we are assured that the idea that a motocycle is a motor bicycle is suīiciently general as to deserve attention and correction…In England particularly it is noticeable that they are disposed to take the contrary view and place motocycles in the automobile class; but there is no sound reason for it. Some of the bicycle papers there eschew mention of motocycles or speak of them as very distant relatives of man-driven cycles, but the leopard does not change his spots; so the cycle is still a cycle, whatever comes or goes, and, □ðttedwithmotors, cycles become and will remain motocycles as long as the manumotive type remains to require the distinction."

"ONE OF THEMOSTNOTEWORTHYFACTSconnected with the manufacture of motocycles—and one that has attracted little or no attention—is the steady growth that has taken place in the size of the motor. Starting with baby motors, as they would be termed in the light of present knowledge, rated at 1¼hp—this was the size of the initial De Dion production—they have already passed the 3hp mark, and have only made a fair start. Already 6hp motors are under way, and the end is by no means in sight."

"ITALY IS SELDOMRECKONEDafactor in the cycle trade, but it has, nevertheless, given a few ideas that have attracted attention. One of these is the bicycle motor shown by the accompanying illustration. It is the design of a Marquis, too—Marquis Carcano—and is being marketed by the Agenda Internazionali Automobilistica, of Milan. Themotor is one of the lightest made, weighing, with its battery, carburetter, etc, only 30lb. It is of the air cooled, electrically ignited type, and has an external □ðywheel,asmallpulley being □ðxedontheopposite end of the crank shaft. Thebicycle, to which it is aīixed, is driven by a belt engagingthis pulley and a light rim attached to the side of the rear wheel, as in the case of the Orient motor bicycle."



The Carcano engine was marketed by the Agenda Internazionali Automobilistica, of Milan.

“ALTHOUGH IT IS DIFFICULT to understand why it should be the case, some of those making or about to make motocycles report that a too general impression is abroad that the term ‘motocycles’ is meant to de□ðne motorbicycles. One of those interested states that he has been obliged to do considerable letter writing to explain away this notion. Why the idea should obtain none can say. Certainly the term ‘motocycles’ seems broad enough to make its meaning clear. It includes any form of cycle □ðtted with a motor, whether bicycle, tricycle, tandem, triplet or quad. Each is a motocycle; collectively they are motocycles. If a motor bicycle was in mind it would be termed a motor bicycle; if a

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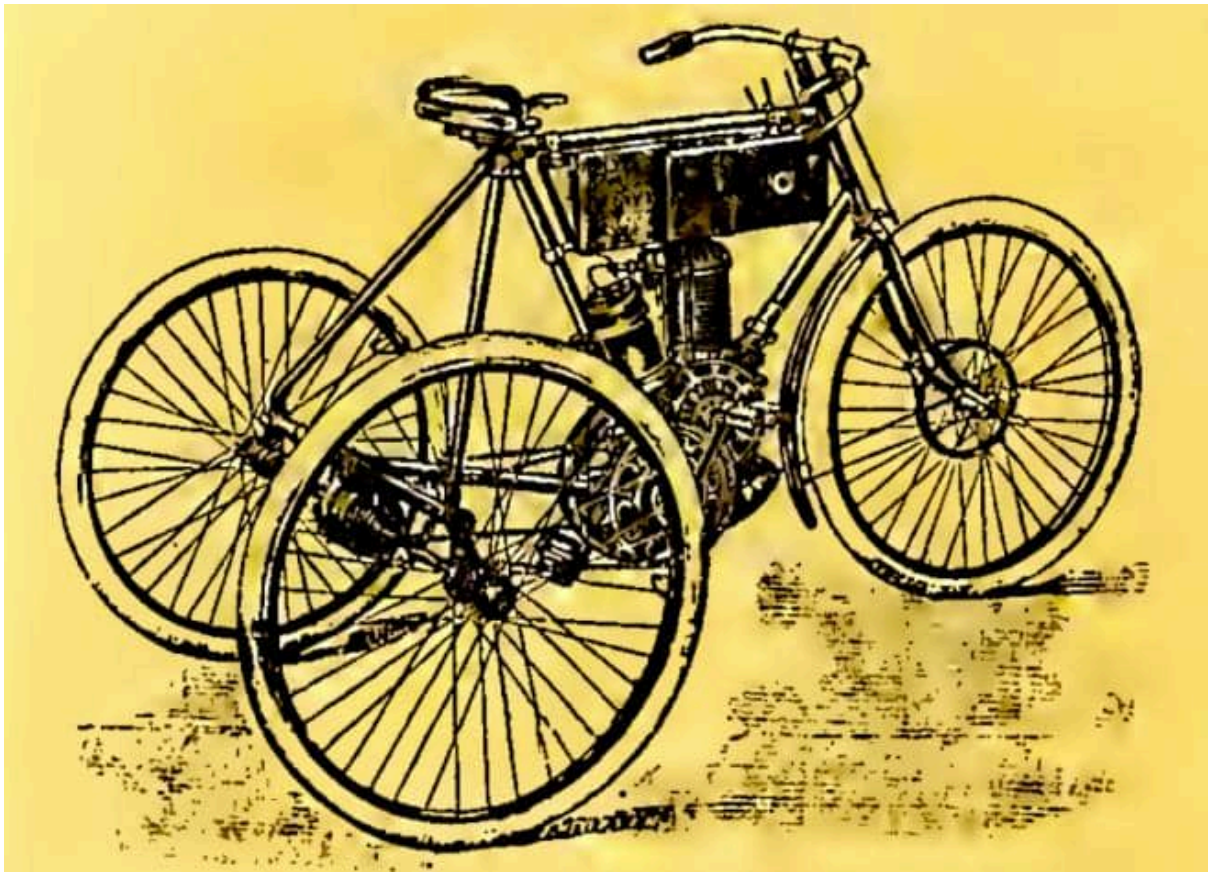
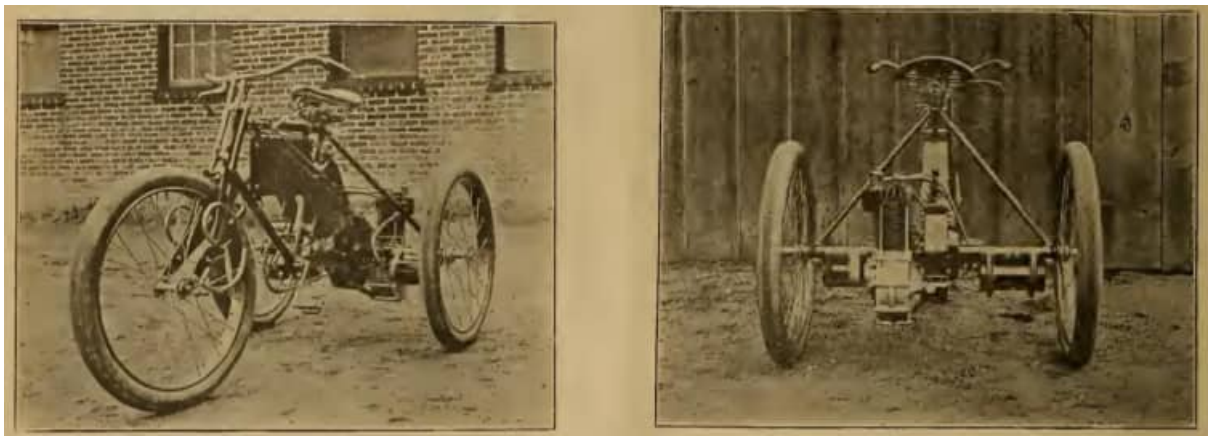
"ALTHOUGHITSWEIGHTisnot stated, what is claimed to be the lightest motor tricycle on the market is the product of a Nurembourg (Germany)concern, and the machine is the location of the motor, it being placed not behind the rear axle, as usual, but within the main frame; in fact, it is so built as to be part and parcel of the frame. Theengine itself is of the vertical, air cooled, single cylinder type, and develops 2hp. It is □ðttedwith the ordinary electric ignition, but to some of the machines a magneto-electrical device is used to generate the electric spark. Thesparking can be varied by means of a lever on the handle bar to the extent that the engine can be made to run at a maximum speed or one-fourth or one-half of the same. In the driving mechanism a small spur wheel on the motor shaft is in gear with a large pinion mounted on a sleeve on the bottom bracket spindle; combined with this pinion is a chain wheel geared by a chain to a small sprocket on the main rear axle. Thepedals are connected with the latter by separate sprockets and chain, a free wheel clutch being provided at the bottom bracket. The combined gasolene tank and carburettor is carried on the top bar of the frame, and is claimed to be reliable in its operation."



The Nurembourg trike's engine formed part of the frame.

""TO THE LONG LIST of forces capable of generating power to propel vehicles is to be added another. All that is accomplished by steam, electricity, gasolene, compressed and liquid air, etc, is promised for the new power. It is nothing more or less than the ordinary gun powder in general use all over the world. Experiments have been conducted with it, and are said to have been highly successful. Of course, it is designed to propel motor vehicles, they being the recipient of the attention of the majority of inventors at the present time. Having electricity, steam and gas before him as the favorite methods now in use, the inventor has been impelled to design a gun powder motor that would be superior to any of the three. He claims that be has succeeded. The experimenter is Herbert E Fielding, a mechanic, of New Haven, Conn. The power he utilizes is the explosion of minute charges of gun powder, □ðredineitherend of a phosphor bronze cylinder, and is thus de-scribed: These charges are very small, not much larger than what is needed for a .32-calibre cartridge. The rapid explosion, however, serves to create an enormous force, and at the same time a very economical source of power. An experiment with a ten pound can of the best Dupont powder furnished force estimated enough to push the vehicle 300 miles. The motor is exceedingly simple, the small charge of powder being fed into the cylinder by an ingenious device. The cylinder itself is jacketed in a tank of glycerine, which prevents undue heating. The principal merit of the invention is the safety of the appliance, no other inventor having yet been able to use powder without the danger of an explosion in

the magazine. In Mr Fielding's motor the powder is fed in similar to a cartridge loading machine, and the powder being stored in a dozen steel shells, quite a distance apart and all opening downward, should there be an explosion of one or all of the shells, no possible harm could result, as the explosion is absolutely uncon□ðned. Several New York capitalists are taking an interest in the new motor, and should the machine demonstrate practically its merits as con□ðdently expected by the inventor, there will be no lack of friends to place it upon the market at once."



"The long promised ABC [American Bicycle Co] motocycles are almost ready for marketing. The □ðrst sample has already made its appearance; front and rear views of it are shown by the accompanying illustrations. In general appearance the machine does not diīer from other tricycles of the sort. The most striking departure is in the construction of the front forks, which are not only of the twin tube variety, but are spring forks, as well."

"NOT ONLY IN THE MOTOR, but also in the form of the tricycle, there has been a great change of late. The professional has seen the advantage of diminishing the wind resistance, and so he crouches down on the machine as if he were lying along the top bar. The tricycle has thus had to be lengthened until it has got an abnormally long wheel base, and the dropped handle bar is made as narrow as possible, so that the rider can press his elbows against his sides. The petrol tank is a big cylinder, carrying □ðve or six gallons of spirit, and, as the professional very often prefers to slip oī the saddle and sit on the tank, it has to be braced up with strong tubes to prevent it giving way under his weight. Such a machine with a 6hp Soncin motor can be driven at a speed of 50mph."

KENNETH A SKINNER, WHO OPENED the □ðrst 'motocycle' shop in Boston, set up the □ðrst motorcycle hire □ðeet with a dozen trikes. Many of his customers were Harvard students; he charged $1 an hour, with another dollar for a half-hour riding lesson.

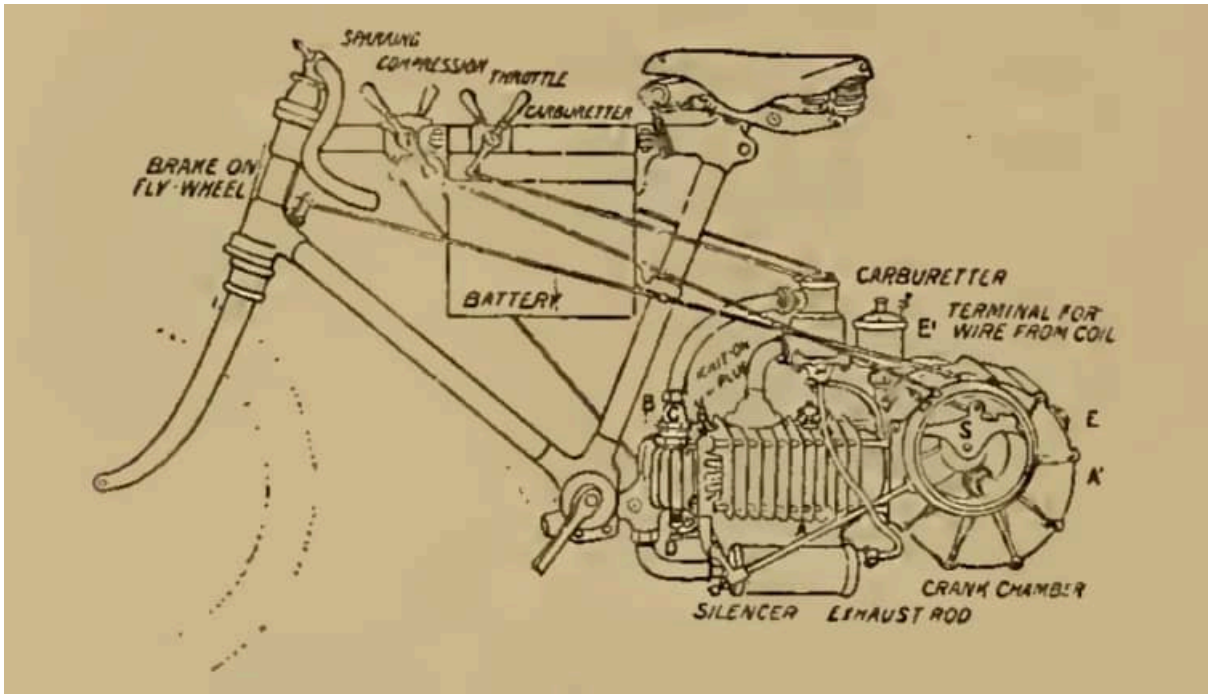
"LONDON, SEPT 15—ON WHAT SHOULD BE RELIABLE authority I hear that several of the Coventry cycle manufacturing □ðrms are now going in largely for the making of motocycles, and that a good many of these machines will be on view at the autumn

shows. I am also informed that in some instances the general designs will be distinct departures from the usual patterns now obtainable."

"EVERYMAN HIS OWN REPAIRSHOP: The toolbag on a motor tricycle, or rather the contents of it, is something calculated to make the average wheelman blink. The size of the bag and the diversity of articles it contains is amazing, and yet there are those who hold that it should contain more. Here, for example, is what an Englishman, the author of a vest pocket volume, 'Motor Tricycle First Aid Kit', would have the motocyclist carry with him: Inlet and exhaust valves; springs, cups and cotters for same; two sparking plugs; asbestos yarn and copper washers; some graphite; plug spanner and shifting wrench; box key for cylinder- top; pliers and screwdriver; two 6in half-round □ðles; two small punches; spare nuts, bolts and washers; few wire nails, assorted; petrol funnel; insulated wire and copper wire; rubber insulating tape; some assorted split cotters; tire out□ðt, with crowbar; small lubricators (paraīin, petrol, machine oil); voltameter; emery cloth; leather for washers; spare interrupter; axle grease."

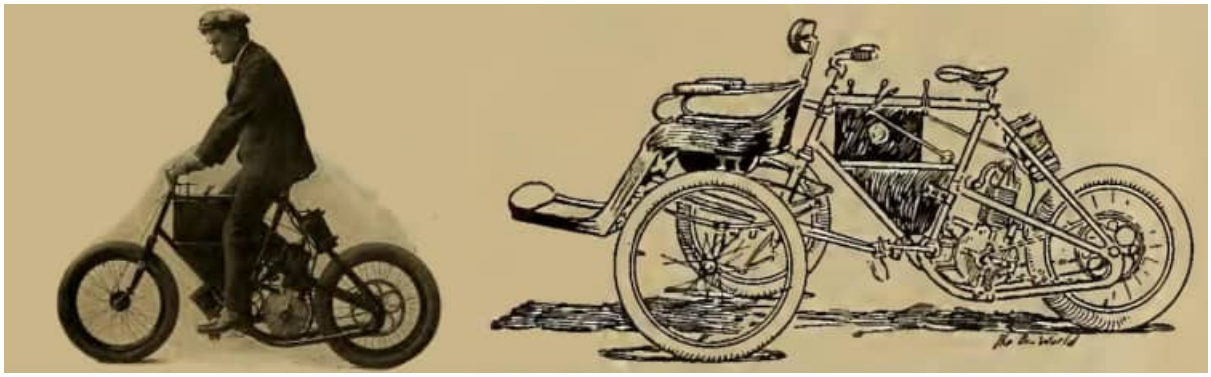
"IF THE ERTHOMAS MOTOR CO, of Buīalo, is not pretty near the top of the heap when the motocycle movement attains force it will he more than surprising. The thorough and painstaking manner in which they have gone into the business and the wide scope which their operations embrace are as suggestive as they are impressive…Their motor bicycles are now ready for inspection. The three types of it are shown by the accompanying illustrations."

"PARIS, OCT 9—ORIGINALITY IS NOT a very strong point with cycle makers here, but they seem to be developing this quality pretty extensively in the motocycle trade just now. Every manufacturer of cycles is trying to make up for the low pro□ðts in his old business by engaging in the more remunerative occupation of building motor driven machines…Up to the present all the leading □ðrms have bolted their motors on the 'bridge', or tube, parallel with the axle, to which it is geared by spur wheels, and only one, the Messrs Renaux, has struck out in diīerent lines by building their horizontal motor into the frame, and thus giving a greater rigidity to the mechanism…A useful device has just been brought out by C Terrot, of Dijon, for utilizing the compression of air in the case containing the crank for cooling the combustion chamber. This is one of those very simple things which make one wonder why it was not thought of before."



Renauxploughed a lonely furrow with a horizontal engine.

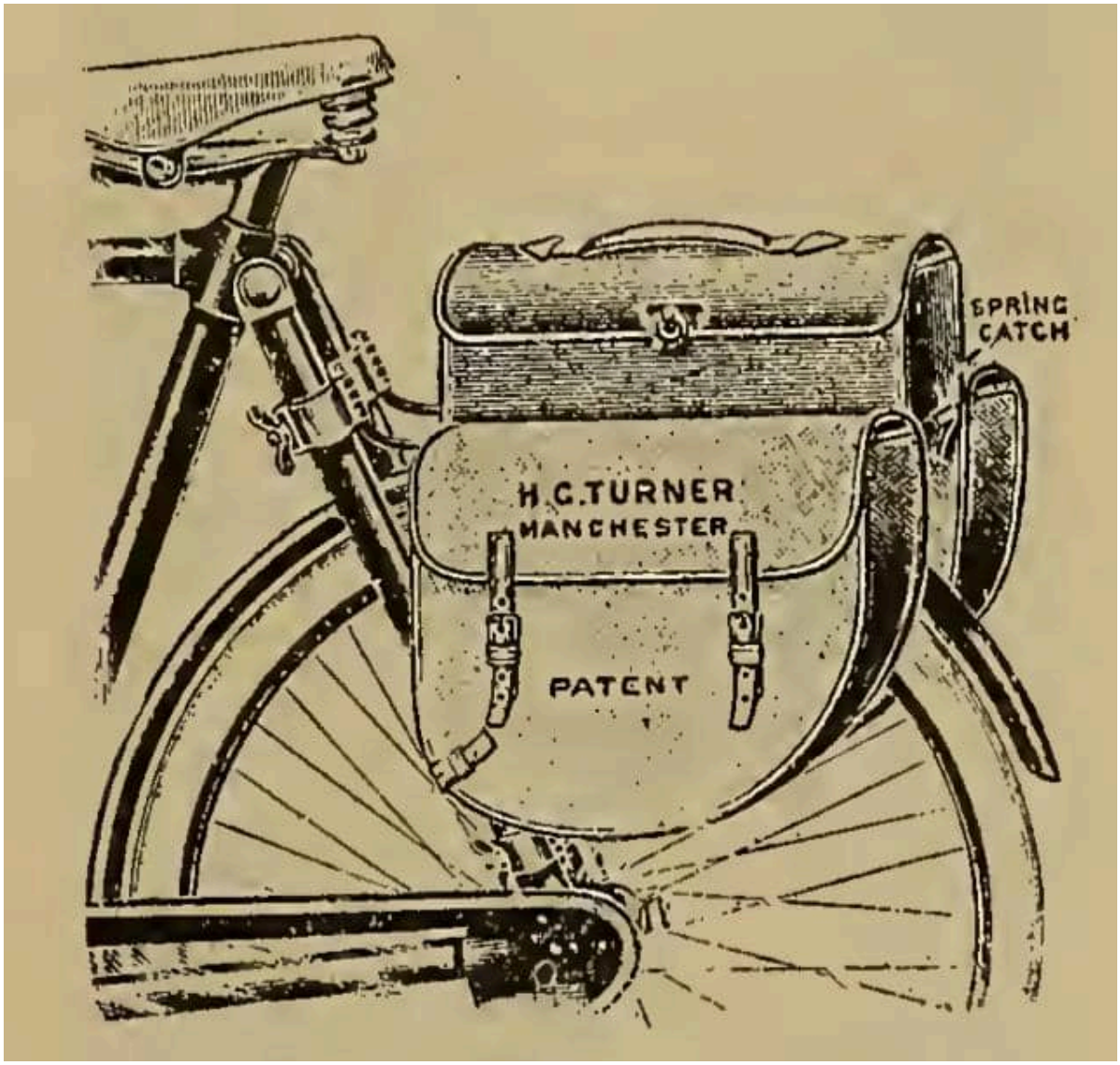
“WHEN JHARRYSAGER,OF ROCHESTER,NY,was in New York last week, showing his Regasmotor bicycle to a select few, he remarked: ‘Heretofore it seems to have been the idea to build a motor into a bicycle. In my machine I have taken a motor and built a bicycle around it—the correct idea, to my way of thinking.’ The lines of the frame, the long wheel base, the location of the motor, the driving of it, the ease with which the motor can be disconnected or entirely removed, if desired, and the bicycle be propelled by pedal power alone, all make, for general interest…one of the features that is of enormous value from a selling standpoint is its convertibility from bicycle to tandem tricycle form…By removing the front seat attachment on the sidewalk it may be carried sideways through any door and be stored or suspended in any corner, while the bicycle itself may then be carried and stored wherever one will, as with the bicycle now in general use…The regular Regas frame, as shown, is to be equipped with a 1¼hp motor, lightening the weight considerably over the □ðrst machine built. When complete it will not weigh over 75lb…the speed will be on an average of 20mph, which is deemed fast enough for ordinary purposes, for Sager, wise man that he is, believes that the high power machines will serve to prejudice the public unfavorably…It will climb most all grades without pedaling, and with a slight assistance from the pedals no hill is too steep, it is claimed…It can be ridden ‘hands oī’ more easily than the ordinary wheel. An average run of 75 miles can be made without the replenishing of the gasolene supply, which may be replenished at any country store. The complete bicycle, as illustrated, with Fred Sager‘up’, has been in use in Rochester for a year or more, and Sager—J Harry—states that it has gone through ‘rain and snow and every kind of weather’ in grand style.”



The Regas could quickly be converted from a solo to what the Brits termed a forecar.

“ON A MOTORBICYCLE—GRAPHIC STORY of the □ðrst tour on that type—the lessons learned: ‘Bump, bump, bump, bump. We bumped on our motor bicycles all the way from the Avenue of the the Great Army, in Paris, to the Golden Gate that leads to the east of France. Of course. I might have had a 30hp car; I might have gone on the train or on an ordinary bicycle, says Joseph Pennell, the Anglo-American artist, in describing his tour on a motor bicycle, the □ðrst recorded occurrence of the sort. ‘But, having tried all these methods and more, it was simply, for the moment, my ambition to drive that motor bicycle myself. I climbed a long, steep hill, and then I thought my troubles were over. The paving ended, the road became smooth and straight, and, pushing and pulling handles and levers, the little thing began to run all by itself, and to run like mad. It sped away across the level plains toward Melun. The air grew fresher and fresher, and even cold. I was chilled by the rapid motion. It was time to put on those leather clothes. I stopped. There were no leather clothes. There was no bag on the luggage carrier. There was nothing but a broken strap. I had dropped a complete suit, a tool bag and a travelling bag, and I never knew it. For when a motor bicycle is going you could almost drop a cartload of coals and never know it. But they manage these things better in France. After an hour’s hunt I found the missing traps at the Mairie of Villeneuve St George’s, to which they had been carried. I had dropped them in the streets of that town. Bump—bump again. But soon it was over, and the good road □ðe wunderneath me almost half way to Melun. And then—just about half way—the machine stopped. Well, maybe those people in London who tried to make me buy their motor tricycle were right. Maybe the machine was a fraud. Maybe I bad been swindled. But I led the little beast to a tree, and I went at it. I examined its insides, its batteries, its wires, its motor, its carburetters, and all its cycling parts. After I had blistered my □ðngers and oiled my clothes and cut my hands it started up again—how or why I do not know. I rarely know. But two or three shoves at the pedals, two or three turns of levers, and the way the little bicycle rushes by itself, at about 30mph, is amazing. What, after this, are high gears and long cranks, free wheels and spring frames? Antiquated delusions, all to be consigned to the scrap heap. Yet, I am afraid, most people do not realize that at the present time it is possible to purchase a motor bicycle which is a practical vehicle. Rather elated at having left two or three scorchers on the level, I crawled through the streets of Melun,

for if you can tear at 25mph you can also crawl at □ðve.ThiswayfromMelun to the east of Franceis up a steep, paved hill, and up that hill 1 went at 12 or 15mph. Theremay be men who haveno interest in motors, or who never can learn to work them. But no cyclist can see a motor bicycle climb a hill unaided without the deepest anguish. Once up, I ran into a head wind. What of it? Like the gentleman in Aesop, I only buttoned up my coat. Therewas no grinding against the blast. Therewas but a feeling of supreme contentment that with a motor bicycle hills and winds are annihilated. And then—crack! It stopped. Down again. Theelectricity is measured all right. Thewires are all right. The sparking plug is all right. Well, everythingis all right, and the beastly thing won't go at all. Here is where the beauty of a motor bicycle comes in. Had I been on a car or a tricycle, or any other sort of motor, I would, as the French say, have rested en panne. But with a motor bicycle I simply pedalled it back to Melun like an ordinary. It was rather hard work for the □ðvemiles—eightkilometres—andit was rather humiliating to encounter the grin of the driver of a De Dion voiturette I had passed earlier near Melum as if he had been standing still. But at the shop of a most intelligent repairer, who has the honour to bear my own name, I was shown by Monsieur Pennell that Mr Pennell had some oil on one of his wires, and that was all. So in a few minutes I was away, and then rode steadily, but probably 20mph, in the twilight, the motor goingred and then white hot, into Villeneuve-sur-Yonne—about seventy miles, the □ðrstday'sride! And every bit of the seventy miles done for me by that little machine, over roads for the greater part bad enough to wreck any ordinary bicycle. Away the next morning early through Sens; and 100 miles, with only a few stops to oil up, were covered before luncheon. Once I timed myself; 17km over a beautiful stretch of road near Tonnerrewere done in 20 minutes. Don't want to ride like that? Don't you? It is only after you have driven a motor and devoted all your energyto driving it that you understand what the pleasure of violent motion is over a good road. It is only after a run of this kind, with no diggingof pedals, no tearing your heart out, no coveringyourself with a froth of perspiration, you realize that a new sort of bicycle is invented that will take you without work just a little faster than you dare to go. After Tonnerreand luncheon, on I went again: 250km had been covered between 8 o'clock and 4…Ihad done it all myself and learned to drive the machine as well.'"



Mr Pennell could have made good use of this English-made luggage, which looks uncannily like panniers and a topbox.

"LONDON, OCT 10—IT IS A FASHIONABLE craze to possess a motor of high power, totally regardless of the fact that the owner is never allowed to show oī the capabilities of his mount on account of the speed limit; but this, on the other hand, is sometimes a merciful dispensation, for half the buyers would not be able to drive these high powered machines with any degree of safety to themselves, not to mention the public."

IN LAUNCHING THE MOTORBICYCLE here shown the Hampden Mfg Co take occasion to remark that 'it is designed and built with a full understanding of the extraordinary strains to which such a machine is subjected.' The motor is built into and forms part of the frame, thus insuring a permanent alignment of the driving sprockets—the Hampden people say the vibration of a high-speed motor makes a rigid attachment a necessity. The carburetter is of a new design, □ðoatfeed, and is provided with a throttle for varying the engine speed. The machine is controlled entirely from the handle bars. The machine

has a maximum speed of 25mph, and its makers claim it carries gasolene suïicient for a run of 75 miles; larger tanks can be substituted so as to allow a range up to 200 miles. The weight of the machine complete is 80lb."

"THE HAMPDEN 1HP MOTOR, made by the Hampden Manufacturing Co, of Spring□ðeld, Mass…is designed and built expressly for bicycles, and when in position is built in and forms part of the bicycle frame…the motor is shown with the gear cover removed, exposing the spur gears, which not alone form the usual two to one gears, but are also the driving gears…The proportions of the motor are: height, 17in; weight, 34lb; speed, 1,500rpm, capacity, 8.8cu in [146cc]."

"THE DE DION MOTOR TRICYCLE FOR 1901 has made its appearance on 'the other side', and proves to embody some valuable developments and re□ðnements. The most important is undoubtedly the employment of a clutch which permits the engine to be thrown in or out of use at will. This contributes immensely to the ease of starting the tricycle, which hitherto has required an exercise of main strength that made the machine an impossible one for ladies and weak or elderly folk generally. By throwing out the clutch, which is done by means of a lever on the handle bar, the machine may be started by pedalling, and then, after it is under way, another pressure of the lever brings the clutch and the engine into play gradually and without the short, jarring jerks common to other motocycles."

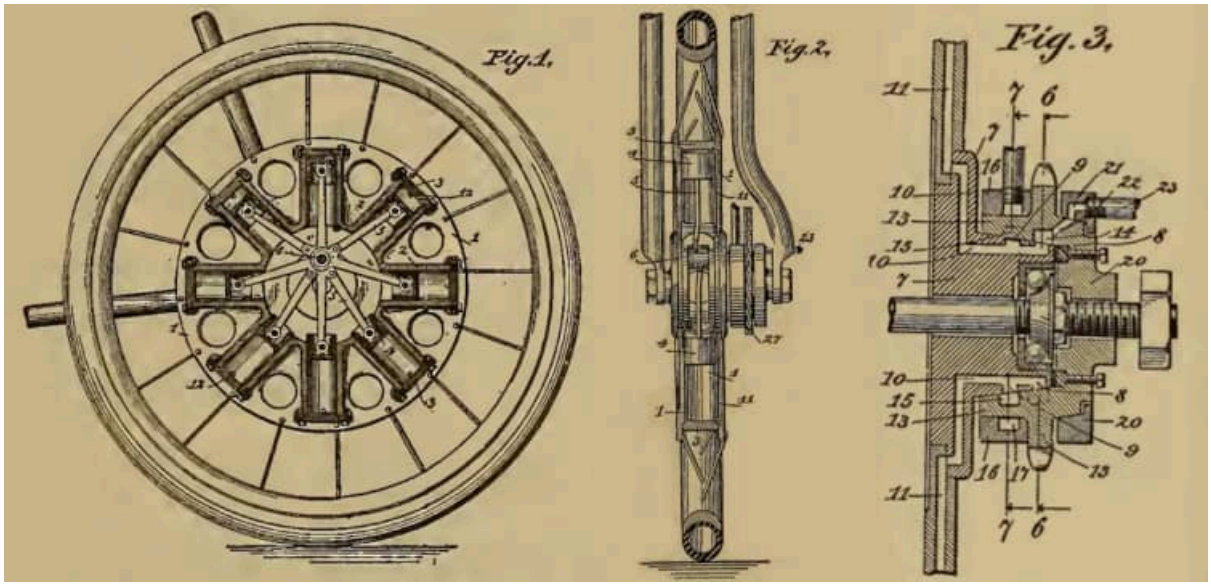
"LONDON, NOVEMBER 14—A GOOD MANY well known motocyclists were present at the Automobile Club's anniversary run from London to Southsea, including the Hon CS Rolls, who for this occasion deserted his Panhard car; [and] Mr Charles Jarrott, who last week broke the English hour's motor tricycle track record by covering 42 miles 285 yards, and many others."

Charles Jarrott on his 8hp De Dion Bouton trike at the Canning Town track where, on 31 October, he covered 42 miles in an hour.

"RW SLUSSER,ONCEA WELLKNOWN □ðgureinthecycle trade, who has spent the last two years abroad, mainly in Paris, returned to New-York on Sunday last. He con□ðrmsall that has been said of the use of motocycles in the French capital. 'You see them everywhere,'said Slusser.'It is virtually only the poor workingman who now rides the leg propelled bicycle. I think I am safe in saying there's not a bicycle store in Paris that does not carry motocycles in stock, and motor vehicles, too, for that matter. Thereare quite a few motor bicycles in use, but tricycles far out- number them.'"

"IF THEBERGMANNMOTOR,WHICH IS termed a '□ðuidpressuremotor', does all that is claimed for it, and duplicates in actual tests on the road the work performed in the shop for the bene□ðtoftheBicycling World representative, it will revolutionize the motor industry…Themotoris a hub motor in fact as well as in name; it forms the hub of the wheel, and when the power is applied it revolvesand causes the remainder of the wheel to revolvewith it…Forthe driving of this motor either steam or gasolene may be used; for cycles the latter possesses advantages,while for carriages, trucks, etc, steam is preferable; kerosene is a third power that is being experimented with, decided progress having been made in this direction…With a bicycle only one would be required, with a

tricycle two, with heavy vehicles four could be used. In Bergmann's experimental machine, a tricycle, only one was used—incased in the rear wheel on the left hand side. The motor used was 10½in in diameter and 2¼in wide, weighing 20lb. With this the tricycle, carrying two men, was driven over all kinds of roads, and during its three months' existence it never failed to answer every call made on it. For a bicycle a smaller and lighter motor will be used. It will be very compact, measuring but a tri□ðeover4inat the axle nuts, or but little more than the ordinary bicycle rear wheel. Within this compass will be the motor proper; the gasolene tank, carburetor, sparking device, etc, will be very much of the usual type, except that the inventor has devised ways ably simplifying the former."



Twenty years before the German □ðve-potradial Megola (you'll □ðnditin 1921) those clever colonials came up with the seven-pot Bergmann.

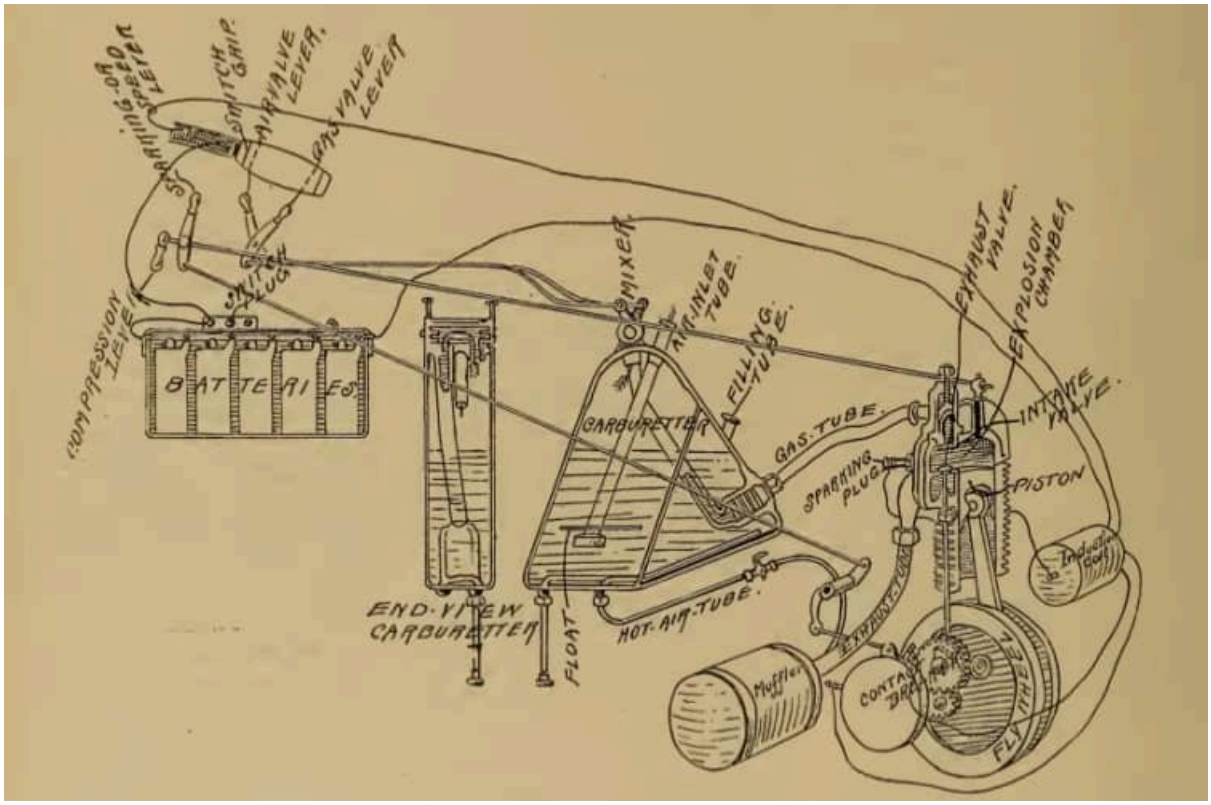
"IMPROVEMENTS IN MOTOCYCLES HAVE NOT yet begun to march apace, probably because the latter are still new and the riding public has yet to make itself heard eīectively. A good place to begin these improvements is with the levers. It is true that these present a formidable appearance only to the novice, and that the experienced rider soon masters their intricacies and □ðndsthemtobe a comparatively simple matter. But there do not appear to be any insuperable mechanical obstacles in the way of vastly improving them, while the bene□ðtofsuchaction would be very great. For example, why should there be two separate levers to regulate the mixture? At least one American concern performs this operation with one, and there is no reason why the custom should not be generally followed. Not only are there too many levers, but they are in the wrong place. In years to come the practice of so constructing machines that the rider must take □ðrstoneandthen the other hand from the bars to regulate the various parts will be regarded as absurd. The hands are needed for steering, and while extended use with motocycles removes or minimizes the danger of taking the hands oī, this is none

the less inconvenient. Thesubject is an interesting one, and opens up many possibilities. It is pretty sure to receiveattention before long."

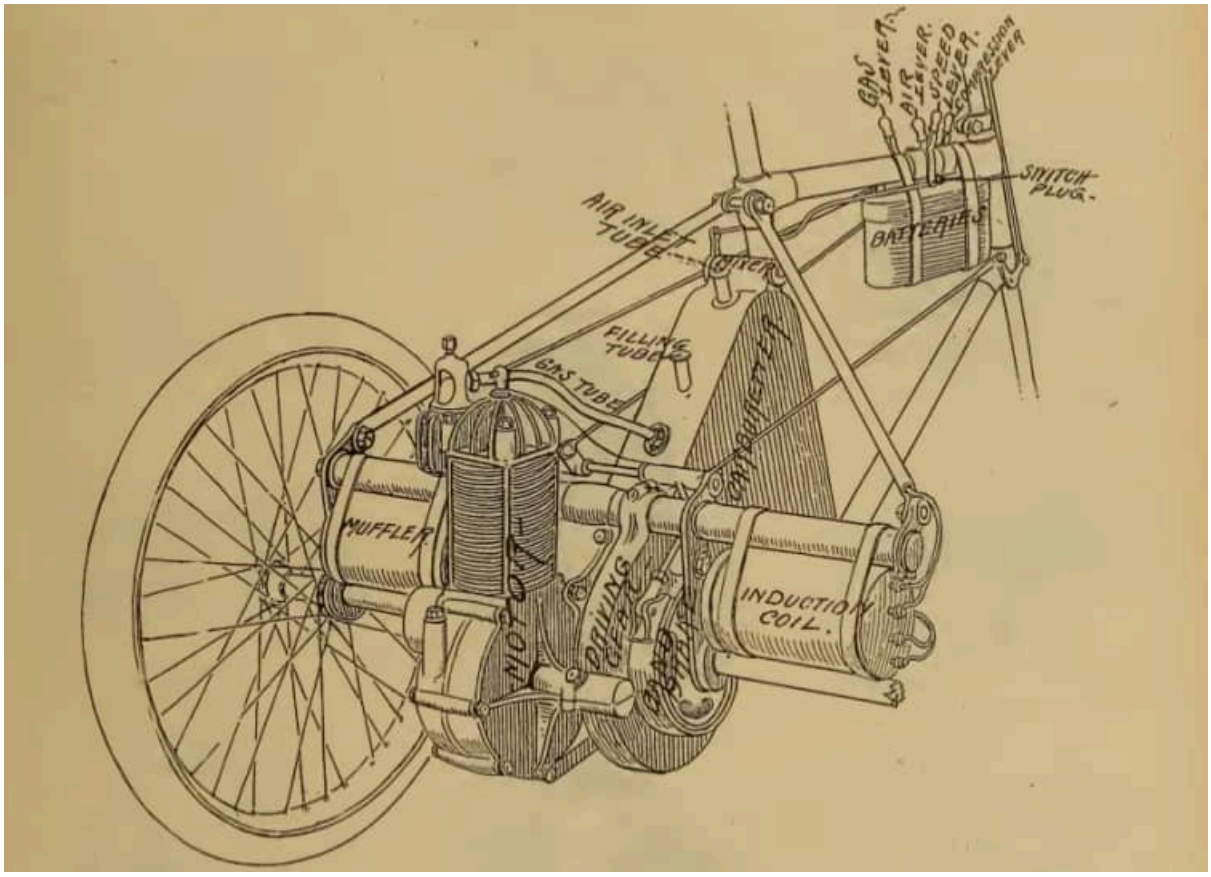
This Levassor& De Boise front-engined trike has more to do with the history of cars than motor cycles, but this pic was much to cool to leaveout.

"ALTHOUGHMOTOCYCLESAREGRADUALLYattainingprominence and popularity, and though the noun rolls easily oī the tongue, real knowledge of the machines is con□ðned to exceedinglynarrow limits…the accompanying illustrations show both exterior and interior views of the mechanism of a motor tricycle and will enable any one to quickly obtain a generalidea that will serve to spread the fund of motocycle information: THE CARBURETTER(orgasolenetank,as it is sometimes called) serves the double purpose of carrying the supply of gasolene and creating a mixture of gas and air, and is half □ðlled with gasolene through THEFILLINGTUBE;THEFLOATprevents splashing of the gasolene and indicates the depth of the □ðuid.Themixtureis made by the air entering the carburetter through THEAIRINLETTUBE,which, as will be seen, is submerged in the gasolene. Theair, of course, comes to the surface of the gasolene in the form of bubbles, which, bursting, form a gaseous vapor. This vapor enters THEMIXERthrough the aperture shown on the right-hand side of the caburetter. As it enters the mixer the

vapor is too heavily charged with gas to be of service. A movement of the air lever admits more air into the mixer and creates a mixture of the proper proportions. This gas, as indicated by the arrow in the end of the carburetter, is then forced downward into THE GAS TUBE, which conveys the mixture to THE EXPLOSION CHAMBER, being admitted thereto, of course, by THE INTAKE VALVE. The explosion is caused by an electric cur- rent, generated by THE BATTERY and conveyed by the wires to the SPARKING PLUG, the current being broken and regulated by THE CONTACT BREAKER. The current, being quite weak, is intensi□ðed by passing through THE INDUCTION COIL; the latter is a coil of several thousand yards of very □ðne wire wound around a metal core. The spark explodes the gas in the explosion chamber, and this explosion forces down the piston, causing THE FLYWHEEL S to revolve, thus supplying the power to drive the machine. THE PISTON, which is merely a metal drum, □ðttings nuglyinside the cylinder, works up and down at a maximum speed of 2,000 revolutions per minute. Immediately after the explosion takes place, THE EXHAUST VALVE is opened automatically and the used gas passes out into THE EXHAUST TUBE and then into THE MUFFLER, which is merely a device for reducing the noise and permitting the gas to escape. A portion of this gas, en route to the muīler, is diverted to THE HOT AIR TUBE, which thus conveys necessary warmth to the gasolene in the carburetter. THE SWITCH PLUG and THE SWITCH GRIP serve the twin purposes of making and breaking the electric current. A turn of the grip or the removal of the switch plug at once breaks the current and the power ceases; just as the reverse operations have the opposite eīect. The plug must be in place and the grip turned in the proper direction, or no power can be generated. The AIR LEVER regulates the quantity of air admitted to the mixer, while THE GAS LEVER regulates the supply of gas. THE SPARKING or SPEED LEVER increases or decreases the number of sparks, and, consequently, the number of explosions, and thus regulates the speed of the machine. THE COMPRESSION LEVER opens and closes the chamber in which the compression of gas and explosions take place, and is kept closed when the full power of the motor is being used to drive the machine. When starting the machine, or running without the power—as downhill—the compression lever is kept open, thereby relieving the motor of the labor of unnecessarily compressing the mixture at each stroke of the piston."



"Rudiments of the motocycle: The Location of its principal parts shown at a glance."



"LONDON, SEPT1: We are now nearing the end of the active cycling season and, therefore, the close of that period of the year when motocycling is enjoyable, or, indeed,

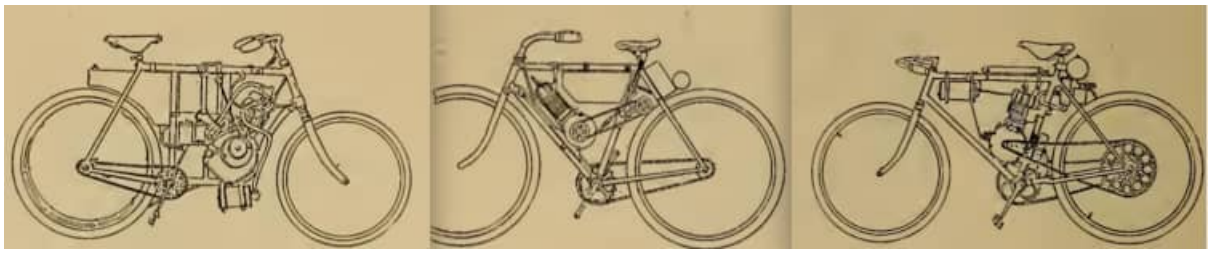
possible. Re□ðectionupontheadvance in the popularity of motocycles during the past summer shows that the sport has gained many adherents, and that it has a great future, although it has been handicapped by somewhat limited outputs and by heavy prices. Themethods resorted to in the direction of improvements have also had much to do with the fact that the numerical numbers of motocyclists has not increased to quite the extent which might have been the case. The□ðttingofhighpowered motors to tricycles in order to attain more speed has tended to increase the price of such machines, and so has necessarily limited the demand. Not only has this been the case in the sale of these very high powered and high priced motors, but the fact that such machines have been placed upon the market has detered buyers, because we have been told that the lower powered motors are no good; hence there has been rather a glut of low powered cycles. Thechange from tube to electric ignition as a standard has also thrown a number of the former machines upon the market at very low prices, while the failure of certain companies to pay dividends and the not infrequent selling of bankrupt stocks, has also aīected the demand for the newer types. For instance, quite lately there were a considerable number of new 1¾hp tricycles, □ðttedwithgenuine De Dion motors, oīered at $125 each, and then there was a diī iculty in disposing of them. Yet these machines were real bargains, and the few people who purchased them and converted them to electric ignition, have said them at double the price named. I fancy that next year we shall see rather a reaction in favor of motors of not more than 2¼hp, which are quite powerful enough for ordinary uses."

IT IS NOT GENERALLY known that the Lozier Motor Company, which will shortly remove from Toledo, Ohio, to Plattsburg, NY, will include a motor tricycle in its productions; the fact remains, however, and the machine is almost ready for the market. That George W Burwell is its designer, coupled with the name Lozier, is suīicient to give it immediate standing; it was Burwell who did so much to make Cleveland bicycles what they are."

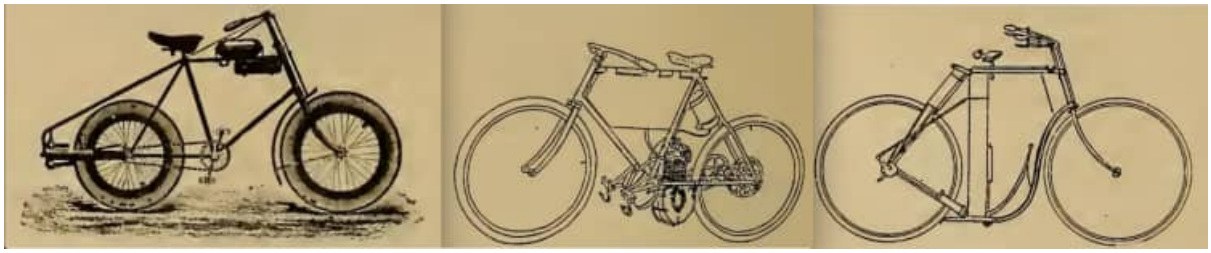
"LONDON, DEC 19—Motocycles are seldom on the roads nowadays. The heavy stoning of the roads and the wet and mud of winter militate against their use. It means a cleaning of machines after even a comparatively short run, and on account of the mud getting into the working parts troubles are of frequent occurrence. Moreover, the tendency to electrical troubles is greatly increased by the wet, and short circuiting is very frequent. It is quite clear, however, that improvements can be eīected in these particulars, and indeed such advances must be made speedily, because motors are wanted for delivery purposes. The tradesman has to deliver, if anything, more goods in winter than in summer, and unless some means of rendering the motor tricycle (which, with a trailer, is now sometimes employed for this purpose) more reliable in bad weather, it will prevent such machines becoming popular for this class of work. Quads are even more out of it, because the heavy roads render them slow and sometimes necessitate constant pedalling, even when the machines are practically unloaded."

“THE MOVEMENTTOWARDMOTORBICYCLES:Until recent months it was supposed that the Copeland steam bicycle, which appeared in California in 1884, was the grand daddy of motor bicycles of to-day; next in line was placed the Pennington, of 1894, which, at any rate, was the □ðrstmotocycleof the safety type, driven by an explosive motor, seen and sold in this country, although a bicycle “driven by expanding ether instead of water,” was devised by Willard I Twombley, of Portland, Maine, was illustrated in TheBicycling World of August 3, 1894. Within recent months, however, WW Austin, of Winthrop, Mass, produced a steam “boneshaker” which he made and used in 18G8, thus leveling the claims of the Copeland machine. A velocipede, of vague origin and description and claimed to have been built in 1876, was also recently unearthed in England. All of these early motocycles are here shown. France, closely followed by Germany, was □ðrsttomakethe motocycle a practical and commercial success, but for the most part the foreigners have devoted themselves to the tricycle; it is in this country that the motor bicycle is receiving the greatest attention. Almost every week brings a new design and its simpli□ðcationandperfection is but a mere matter of time. Without recourse to the many ‘freaks’, the accompanying illustrations serve to show the wide range of thought and inventive design that has evolved and is centered in the bicycle that will ‘level the hill and still the headwind’, the twin terrors of the averagecyclist.”

Austin steamer (1868), Roper steamer (1896), Regas.

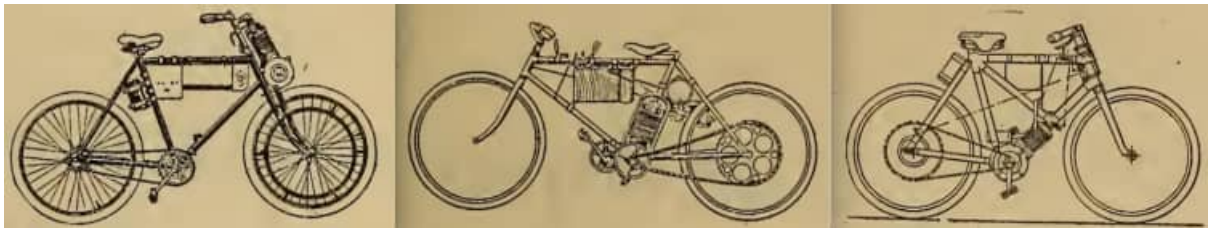


Orient, Thomas, Marsh.

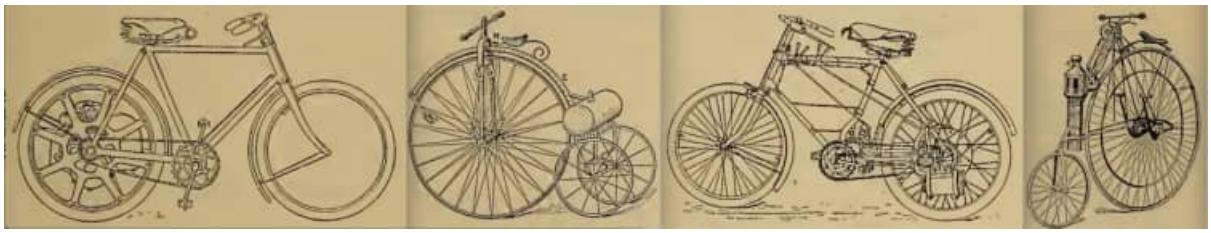


Pennington (1894), Edmond, Twombley ether (1894).

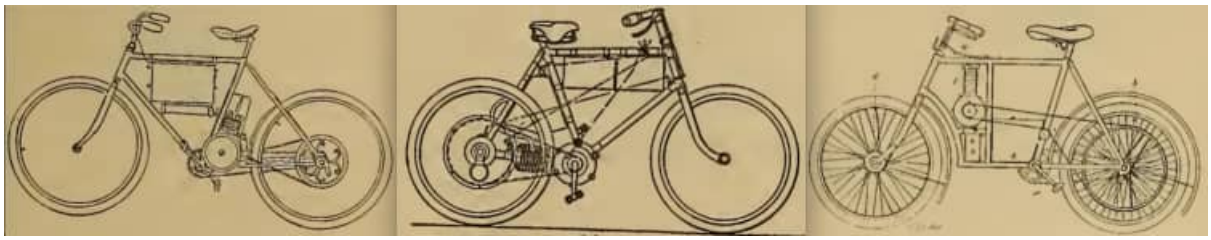
Clark, Volta (French, 1895), Fliniois (French).



Werner (French), Holley, Gibson (English).



Compact (English), Bucknell Velocipede (English, 1876), Butikoīer (German), Copeland (1884).

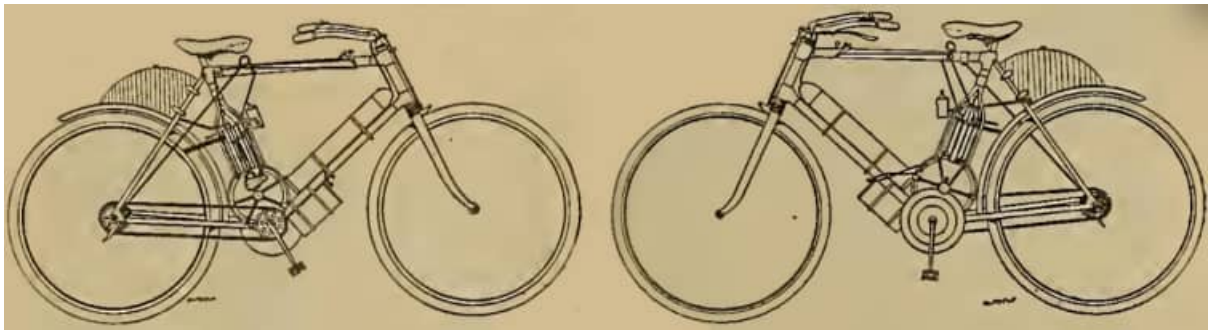


Lear, Gibson (English), Republic (French).

Anthony, Chapelle & Chevallier (French), Regas.

A DOZEN 'MOTOCYCLES' WERE AMONG the exhibits at the 10th bicycle show to be held at Madison Square Garden, New York. The Bicycling World expected to see "the good old pedal pushed bicycle reach out its crank to its newly found brother, the gasolene goer, and exclaim, 'Shake!' And it reported: "There arrived at the Show on Wednesday a motor bicycle made by E Hefelinger, Town of Union, NJ, and it is no exaggeration to say that it created a sensation. In the centre of a diamond frame bicycle is built in—in the place of the usual seat post mast—a frame of small tubing to take the motor. Ordinarily

this method of attaching it would be attended with many disadvantages, but so compact is the Hefel□ðngermotorthatit does not interfere with the rider or the mechanism of the bicycle in any way. The drive is a chain, running on two nearly equal sized sprocket wheels, and connected with both the crank shaft of the motor and the pedals, so that either or both can drive. In the crank hanger is a clutch designed to throw the pedals out of gear when they are not driving. A two-speed gear is □ðttedtotherear hub. Thecarburetter is placed back of the saddle and the battery is contained in a long cylinder, which is aīixed to the lower frame tube. The □ðangesforcoolingthe motor run vertically instead of around the cylinder, as usual…Itis very plain that the disposal of the motor is the chief problem awaiting a solution at the hands of motor bicycle designers and makers."

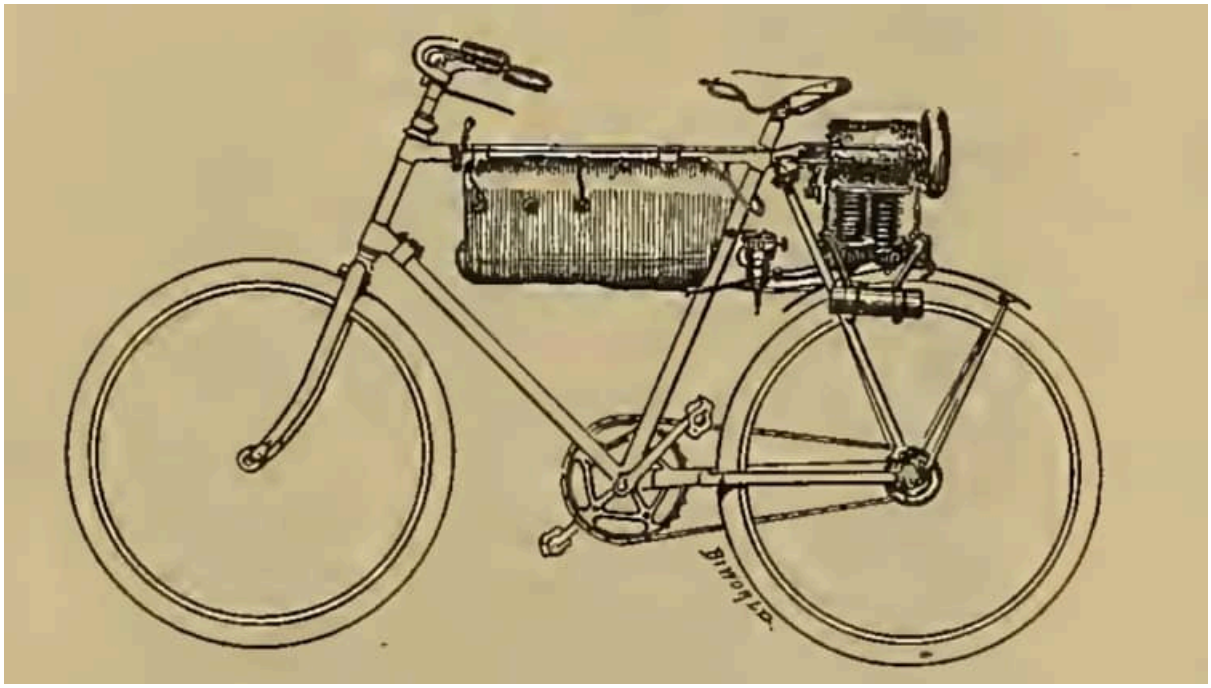


"So compact is the Hefel□ðngermotorthatit does not interfere with the rider or the mechanism of the bicycle in any way."

"PARIS FEB 1—THEMOTORBICYCLElooks large in the automobile show which was opened here last Friday…Everymakerwho has been able to get hold of a new motor or devise new transmission or invent a novel method of applying the mechanism is going in for their manufacture. Theseeīorts after originality have resulted in quite a large number of diīerent types, and, what is more, they have convinced the public that there is something in the motor bicycle, after all…All the bicycles in the show are, with one or two exceptions, □ðttedwithmotors with a maximum of 1¼hp. and one of these exceptions is the Cyclette Iochum…Themotor is the old pattern 1¾hp horsepower De Dion, which has been □ðxedonthebottom bracket by an attachment to the diagonal tube, and its novelty lies in the fact that it has been entirely inclosed in an aluminum case which is intended to facilitate cooling of the motor by creating a strong draught of air which will enter the case at the centre of the □ðywheel,and,after circulating around the ribs, will issue from the case at the top…Anotherfeature of the bicycle is the carburetor, which, it is said, will allow of the motor running equally well with alcohol or gasolene, so that the owner may always be sure of getting supplies wherever he may □ðndhimself.Themakerclaims that this machine can go up any hill without the aid of the pedals, and we have no diīiculty in believing the statement…TheLandrumotor bicycle is one of the few machine with a specially designed frame for running. with the motor. Thedown tube is replaced with two tubes of smaller gauge,the ends of which are brazed on each side of the head tube, and then come round the back of the front

wheel and extend horizontally to the bottom bracket to form a bed for the motor…Inthe Motocyclette the motor is □ðxedverticallyonthe bottom bracket…and is said to develop 1½hp…Themotoris thrown out of gear by means of a lever behind the head tube, and the bicycle can be □ðttedwitha change-speed gear if desired…the carburetor is of the sprayedtype, which undoubtedly seems to result in an economy of consumption, and moreover, allows of alcohol being used; but, on the other hand, it cannot be so easily regulated as the ordinary carburetor…Anothermethod of motor attachment is seen in the Centaure bicycle of L Flinois, who casts his motor case with a bracket, so that it can be bolted to any part of the machine…Byrunning at 2,000 revolutions it is said to develop 1½hp, but it is obviously quite out of the question that an air-cooled motor would be able to run at this speed for any length of time without risk of overheating…A very elegant bicycle is being shown by the Compagnie Frangaisedes Moteurs et Autocycles Salvator, in which we again see the tendency which is growing among makers to build the motor as part of the machine, instead of merely □ðxingittoany kind of frame….Themotor is cast with ribs having a very large surface, and the exhaust valve is in front, so as to have full advantage of the air. A feature of this bicycle is a new method of magneto-electric ignition, which, however, was not □ðxedtothebicycle shown, but we shall have an opportunity of testing it later on. TheSalvator magneto-electric device is said to weigh less than a pound…Oneof the claims for La Victoire motocyclette is that the motor can be adapted to any machine, and is cast with a bracket, so that it may be conveniently bolted to any of the tubes. In the machine exhibited it is □ðxedbelowthedown tube, and power is transmitted in the usual way by a belt…TheBoillodis entirely diīerent from the others exhibited in the sense that the maker has not relied upon the standard types of motors, but has devised a 1hp two-cylinder engine which is inverted at the back of the bicycle…Itis carried on a bed bolted to the backstays just above the wheel, and the motor shaft is thus about on a level with the top tube. This topsy-turvy method of □ðxingthemotorhas been adopted so as to allow of the motor shaft gearingon to a bevel rod which runs in a tube fastened to one of the back-stays, and is connected with a bevel wheel on the hub of the driving wheel…theFrench cycle makers have taken up the motocycle business with a great deal of spirit, and seem likely to build up a very satisfactory trade in these machines."

On show at Paris: La Centaure, La Victoire, La Salvator.



Also at Paris: The Boillod's in-line twin was mounted upside-down on the carrier.

"THIS EXPERIENCE WITH ONE of the early machines is related by one who had the pleasure (?) of trying it: 'This particular monstrosity in motors,' he says, 'was in Melbourne when I made its acquaintance, and where its arrival and □ðrst public appearance made a great sensation. There is a photograph in existence taken of the crowd outside Melbourne Post oīice when the bicycle □ðrst essayed to start, and the picture shows a surging multitude, a great sea of heads. The writer and two friends used to try to make this motor go. It took three to do it, one to sit on the bicycle and one to hold it up on either side. It was most essential to keep the machine straight until it got fairly going, for if allowed to tilt its great weight carried all before it, and down went the unfortunate man on that side. Once going, all went well until the rider wished to dismount. Then there were anxious moments, and the two footmen would run to the rescue, and the mighty traction engine would be gradually slowed down, its supporters on either side holding on like grim death.'"

Before there was AJS there was The Stevens Motor Manufacturing Company. After reading an article on powered bicycles Harry set about making one and here it is, with Harry, Joe Jnr, George and Jack in their Sunday best.

"AN ENGLISH PATENT HAS BEEN granted to CH Metz, of the Waltham Mfg Co, for a double-cylinder, air-cooling gas engine. This engine, writes Mr Metz, is only in an experimental stage, and upon the result of the severe tests it is now being subjected to will depend whether or not it will be used…The engine is of the four-cycle type, the pistons working in unison and compressing the charge into one combustion chamber; only one inlet and one exhaust are used for the two cylinders. The inlet valve operates automatically…Any number of cylinders may be used."

"LONDON, FEB 27—THE SINGER CYCLE CO are building a considerable number of the pattern they exhibited at the National Show, and already several of these have been sold to private buyers, which makes it appear that there may be a small trade in motor bicycles next summer, but I cannot say that I think it likely that any great amount of business will be done with these machines for the next twelve months in any case. I speak thus plainly in the best interests of American dealers and manufacturers who may be thinking of shipping such cycles to this country. There is no gainsaying the fact that there is an immense amount of prejudice against two-wheeled motors, and even supposing that the machines really prove satisfactory, this prejudice will take time to overcome, and during that time will limit the trade to a very considerable extent. Prejudice means a great deal in this country, and it has to be faced."

This purposeful steamer was pictured at La Cipale Velodrome on the Bois de Vincennes, Paris. What's more the velodrome is still in business.

"FARRELL'SCOMPRESSIONTAP,INwhich a tube is carried from the tap to the exhaust silencer, so that the hissing noise is done away with when the tap is open, seems to be gaining favor…Thetap,it will be remembered, has a non-return valve, so that, although it allows the compression to escape, yet it insures a proper mixture when the piston commences to descend."

"IN GOODTIMETHEADVANTAGESofthe motocycle will be too fully understood and appreciated to require much elucidation of the sort, but during its novitiate, so to speak, the dealer should lose no opportunity to make the most of his material…Severalads have come to our notice that show that the dealers in question have failed utterly to appreciate the situation. Theydeal in generalities that do not even glitter. Theysuggest nothing, they arouse no curiosity and can scarcely provoke inquiry…Ifthere is anything under the sun that should appeal to the cyclist it is a bicycle that will push its rider uphill and against headwinds with little or no eī ort on his part…Itis this fact that must be kept in mind in talking and in advertising motocycles. It is the key to the motocycle's popularity, and the key should be used early and often. 'No hills, no headwinds'—and in ðytime'noperspiration'—these form the slogan, the war cry, the selling argument of the motor cycle."

“While motor bicycles with the motor mounted on the front forks appear to be the most popular type on ‘the other side’, the □ðrstoneofthe kind of American make is being turned out by the Fleming Motor Vehicle Co of New York City, the front fork carrying the entire equipment except the coil and batteries. Thefront fork is of special construction, and is very strongly made. Thepower is transmitted from the motor to pulley on front wheel by half-inch half-round belt. This belt is adjusted by a ratchet lever, which permits of the wheels being started with slack belt, and belt tightened after wheel is in motion.”

“IN LONDON THECOURTSHAVEbeen called on to de□ðneamotocycle, or at least to de□ðnethediīerence between a motocycle and a motor car, as they misleadingly term a carriage on ‘the other side’…Nocarriage, car, truck, dray or other form of vehicle has either saddle or pedals, or has ever had them; the cycle has both, and has always had them. Thediīerence is right there, and the line of demarcation is so deep and distinct and drawn so clearly that we cannot understand why even Englishmen can disagree on the point…Thatis the noble game of English law—bolstering up a mass of incongruities for the simple purpose of keeping a great number of idle young and old men in pocket money…theLightLocomotives Act of 1896 rules that all vehicles upon which a motor is □ðxedandarepropelled by that motor are light locomotives…it is said that therefore all motocycles are light locomotives, just as cars are held to be.”

“THE MOTOCYCLISTSWHOWENTDOWNsouth right under the shadow of the Pyrenees to take part in the Paumeeting did not □ðndmuchofa change from the bitterly cold weather they had hoped to leave behind them in these more northerly climes. Thefur coats were not much of a protection with the mercury concealed in the bulb and the frozen air shifting just enough to make it feel even colder than it was. Therefore the motocyclists had to take excessiveprecautions in wrapping themselves up, and Osmont came out equipped from head to foot with a woollen-sacklike garment, with

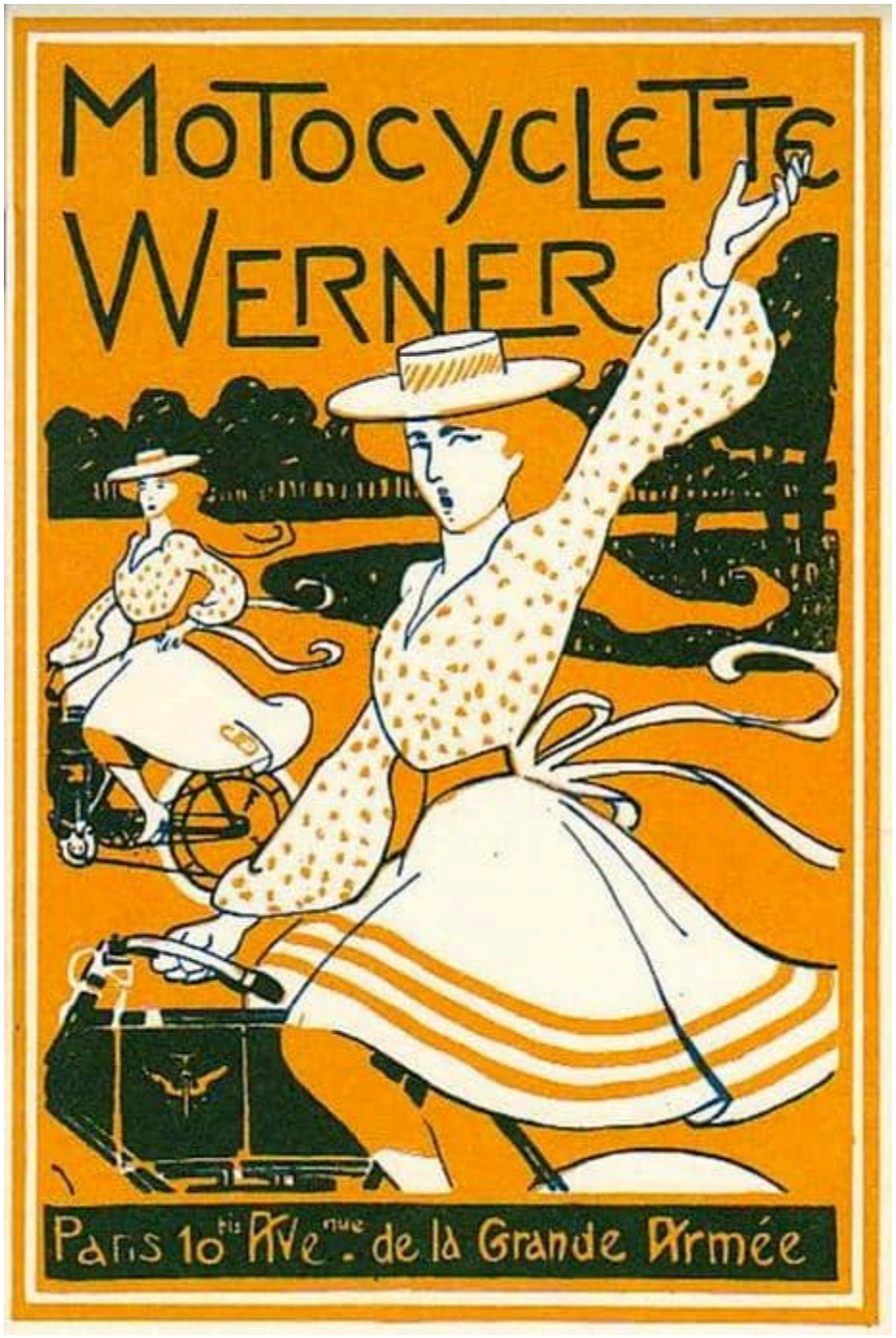
just a slit to see through, making him look for all the world like a member of the Spanish Inquisition; and, notwithstanding this, he nearly dropped oī his machine when he □ðnished,utterlybenumbed with cold."

"HAVING APPARENTLYEXHAUSTEDtheinventivepossibilities of the ordinary bicycle, JB Dunlop, the father of the pneumatic tire and inventor of a spring fork and self-adjusting bearings of unusual merit, has turned his attention to the motor vehicle…Withthat clearsightedness which has always been one of his distinguishing traits, the veteran inventor has placed his □ðngeronthemethod of carburetting as the part of the gasolene motor most urgently in need of reform…he has very much modi□ðedthe1900pattern spray carburetter. He has closed one of the air inlets, and has made it self-regulating, so that at all speeds and at all degrees of throttling the quality of the mixture is correct and requires no attention…MrDunlop contends that much of the diīiculty in starting is caused by imperfect carburation, and the results obtained by his improved carburetter would seem to justify this opinion. Whereas he had considerable trouble in starting his De Dion before, the vehicle now starts at the □ðrstturnofthe handle, which he operates from the seat."

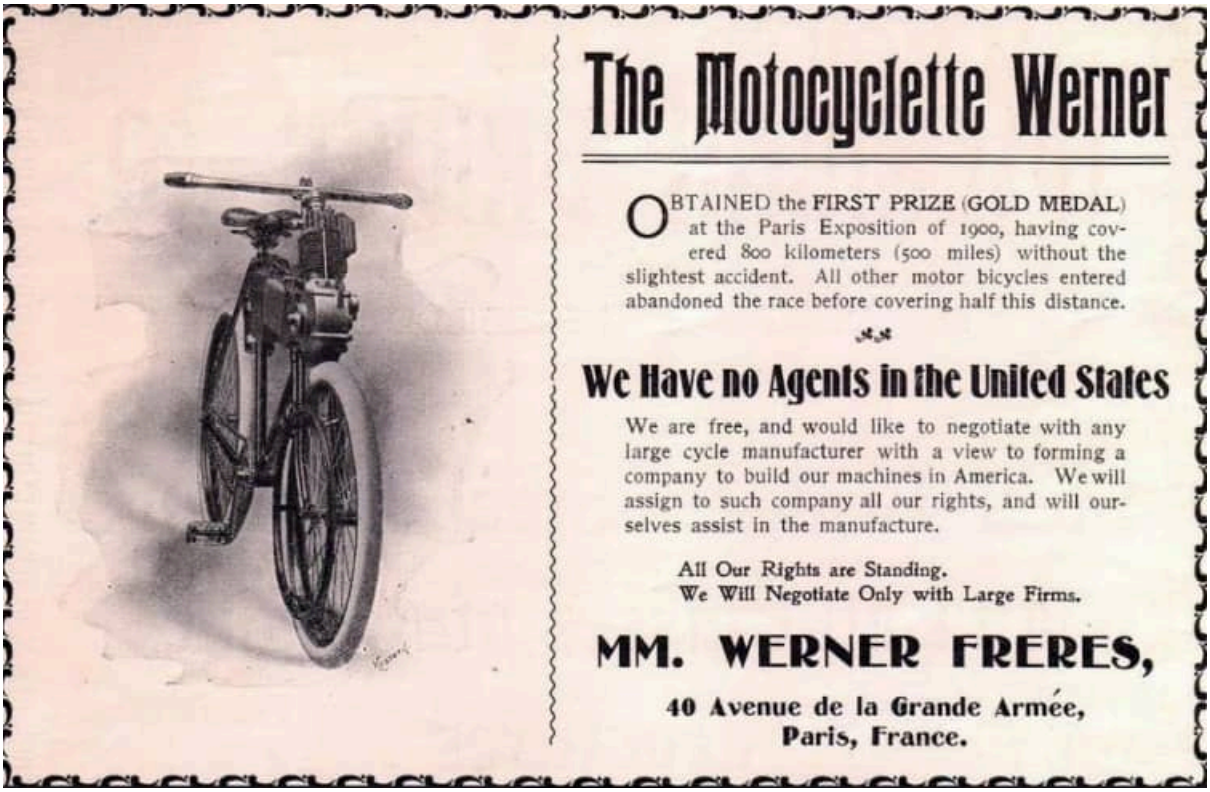
The Werner Brothers made sure their creation's light did not hide under a bushel:

LA MOTOCYCLETTE
Seule Bicyclette à Pétrole pratique
Poids : 30 kilogr. Vitesse 45 kilom.
Monte bien les côtes.
Près de 3000 Machines vendues.
Demander Catalogue
MM. WERNER Frères & Cie
40, Av. de la Gde-Armée
PARIS

LA MOTOCYCLETTE WERNER
La seule Bicyclette à Pétrole pratique
NOS SUCCÈS SPORTIFS EN 1899 ET 1900
3.000 MACHINES VENDUES
MM. WERNER Frères & Cie
40, Avenue de la Grande-Armée, 40. — PARIS



And to conclude this review of 1900, here are some of the adverts that were tempting pioneer American 'motocyclists' in the pages of The Bicycle World and Motocycle Review, starting with an advert looking for US agents….



The Motocyclette Werner

OBTAINED the FIRST PRIZE (GOLD MEDAL) at the Paris Exposition of 1900, having covered 800 kilometers (500 miles) without the slightest accident. All other motor bicycles entered abandoned the race before covering half this distance.

We Have no Agents in the United States

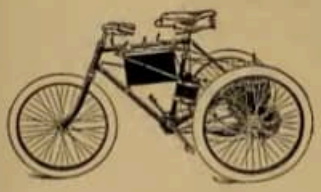
We are free, and would like to negotiate with any large cycle manufacturer with a view to forming a company to build our machines in America. We will assign to such company all our rights, and will ourselves assist in the manufacture.

All Our Rights are Standing.
We Will Negotiate Only with Large Firms.

MM. WERNER FRERES,

40 Avenue de la Grande Armée,
Paris, France.

THIS



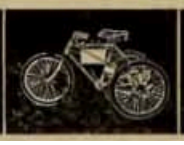
This is the Orient Autogo, the fastest American built motor vehicle on God's green green earth—proven to be by Albert Champion, who established the world's 50-mile record of 1 h., 15 m., 57 3-5 s., and the world's hour record of 40 miles, 132 yds., at the Chicago track, against the most powerful kind of competition, without an adverse happening of any kind.

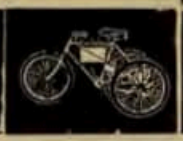
It is good to represent the Orient Leader because it holds the championship of this wide world as a bicycle achievement.

It is not equally desirable to have on hand an Orient Autogo which holds the same position in the automobile arena?

Its purchase marks you as the only authorized agent in your town for the entire line of Orient Motor Vehicles. Write for terms.

WALTHAM MFG. CO., WALTHAM, MASS.





ORIENT MOTOR BICYCLES.

ORIENT AUTOGOS.

ORIENT VICTOR-IETTES.

Schrader Universal Valve.

(Trade Mark, registered April 30, 1895.)

NOTICE.

Manufacturers of Bicycles, Jobbers and Dealers:

In order to facilitate the obtaining of

PARTS of the Schrader Universal Valve,

I have a concluded to sell parts only to the general trade.

Parts 99-1, 99-2, 99-3, 99-4, may be had from all the makers or from A. SCHRADER'S SON. Price List and description of parts sent on application.

SIMPLE AND ABSOLUTELY AIR-TIGHT.

Manufactured by

A. SCHRADER'S SON

ESTABLISHED 1844.

30 and 32 Rose St.,

New York, U. S. A.

..A REVOLUTION IN CYCLING..

..MOTORS FOR BICYCLES..

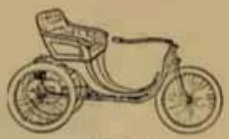
.BICYCLES WITH MOTORS.

AUTOBI, NO. 1
RACER.
Patent Pending.

AUTOBI, NO. 2
ROADSTER.
Patent Pending.

MECHANICALLY PRACTICAL.

AUTOTRI
AN IDEAL ROADSTER.
Patent Pending.



AUTOTWO
AN IDEAL ROADSTER FOR TWO.
Patent Pending.

COMMERCIALLY PRACTICAL.

Cheapest Mode of Transportation Known to Mankind. Every Bicycle Dealer, Manufacturer and Repairman is Interested. Send for Catalogue and Discounts.

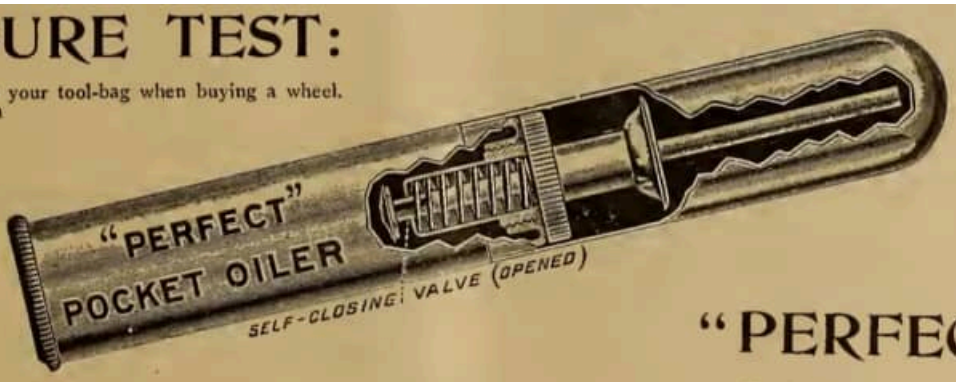
AGENTS WANTED EVERYWHERE.

E. R. THOMAS MOTOR CO., 108 BROADWAY, BUFFALO, N. Y.

A SURE TEST:

25c

Look in your tool-bag when buying a wheel. If you see a



"PERFECT" OILER

you will know that it has cost the maker of the bicycle more than twice as much as the ordinary oil can. The probability is that such a maker is building wheels with regard to QUALITY rather than expense.

CUSHMAN & DENISON, Mfrs., 240=2 W. 23d St., N. Y.

THE NULITE

750 CANDLE POWER

ARC ILLUMINATORS

Produce the finest artificial light in the world.

SUPERIOR TO ELECTRICITY OR GAS. CHEAPER THAN KEROSENE OIL

A 20th Century Revolution in the Art of Lighting.

They darkness into daylight turn,
And air instead of money burn.

No Smoke. No Odor. No Noise. Absolutely Safe.

They are portable. Hang them anywhere.

WE ALSO MANUFACTURE

TABLE LAMPS, PENDANTS, WALL LAMPS, CHANDELIERS, STREET LAMPS, ETC.

The BEST and only successful

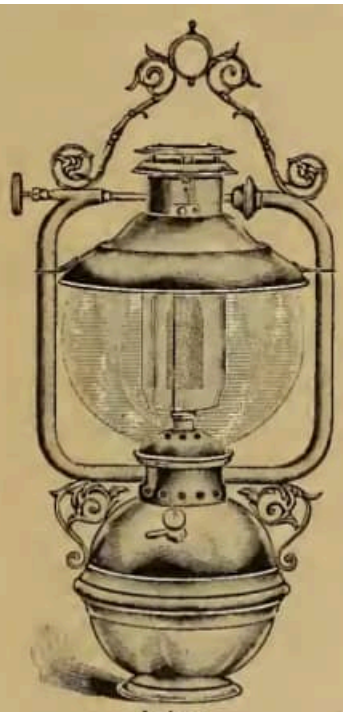
Incandescent Vapor Gas Lamps

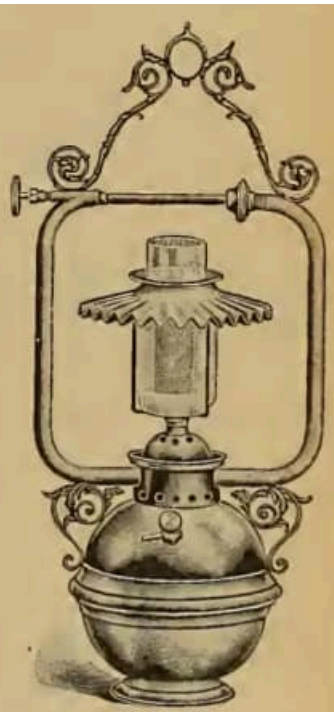
made. They sell at sight. Nothing like them.

A SNAP FOR BICYCLE DEALERS.

Agents wanted everywhere.
Write for catalogue and prices.

CHICAGO SOLAR LIGHT CO.,
56 FIFTH AVE., CHICAGO, ILL.


Indoor.

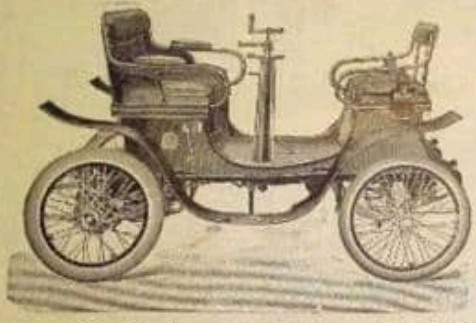

Outdoor.

DE DION-BOUTON & CIE

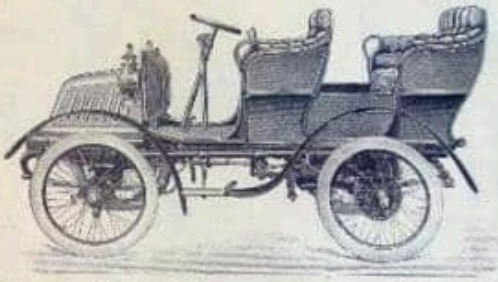
GRAND PRIX
Paris 1900

36, Quai National, PUTEAUX (Seine)

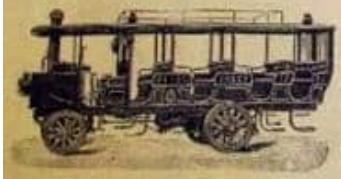
GRAND PRIX
Paris 1900



Voiture à Pétrole, Moteur type 8 chevaux. *Prix* : 4.900 fr.



Voiturette à Pétrole, Moteur type 6 chevaux. *Prix* : 4.150 fr.



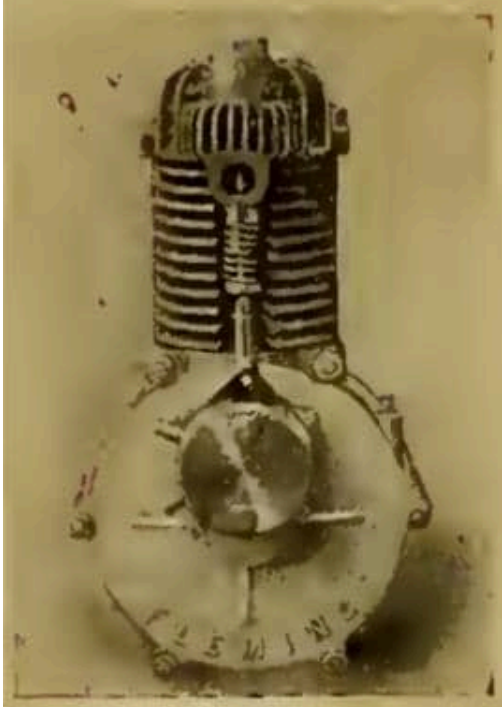
Char à bancs à Vapeur
24 places 30 chevaux. *Prix* 23.000 francs
16 — 25 — — 22.000 —

Tricycle à Pétrole
Moteur type 2 chevaux ½ avec culasse à circulation d'eau... 1.750 fr.

Omnibus à vapeur avec Compt
30 places 30 chevaux. *Prix* 25.000 francs
14 — 25 — — 23.000 —

Veuillez adresser les Ordres par l'intermédiaire de MM. les Commissionnaires-Exportateurs

"FLEMING" BICYCLE MOTOR



No wheel is complete without one of our Gasolene Motors. Be up to date.

Build a Motocycle

Prices and particulars upon application.

Fleming Manufacturing Co.
DEPT. B.
90-92 Pearl Street
BROOKLYN, N. Y.

GASOLENE MOTORS

FOR

Bicycles, Vehicles and Launches

AIR COOLED AND WATER JACKETED

ACCESSORIES AND PARTS

ALSO

Complete Sets of Castings and Working Drawings

LOWELL MODEL CO.

Box 292 LOWELL, MASS.

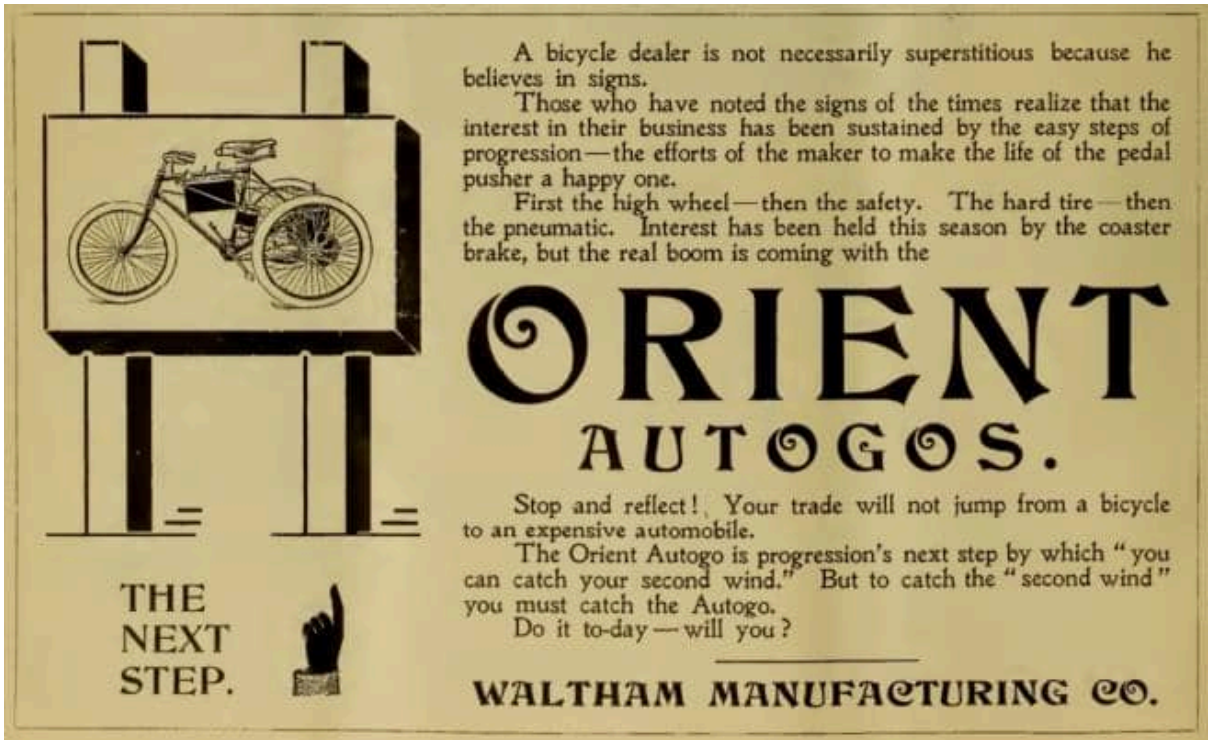
NEVERLEAK

STOPS LARGE PUNCTURES.

This is the only fluid that can be legally used in pneumatic tires. Suits now pending.

BUFFALO SPECIALTY MFG. CO.,

Buffalo, N. Y.


A bicycle dealer is not necessarily superstitious because he believes in signs.
Those who have noted the signs of the times realize that the interest in their business has been sustained by the easy steps of progression—the efforts of the maker to make the life of the pedal pusher a happy one.
First the high wheel—then the safety. The hard tire—then the pneumatic. Interest has been held this season by the coaster brake, but the real boom is coming with the
ORIENT
AUTOGOS.
Stop and reflect! Your trade will not jump from a bicycle to an expensive automobile.
The Orient Autogo is progression's next step by which "you can catch your second wind." But to catch the "second wind" you must catch the Autogo.
Do it to-day—will you?
WALTHAM MANUFACTURING CO.
THE NEXT STEP.

1901

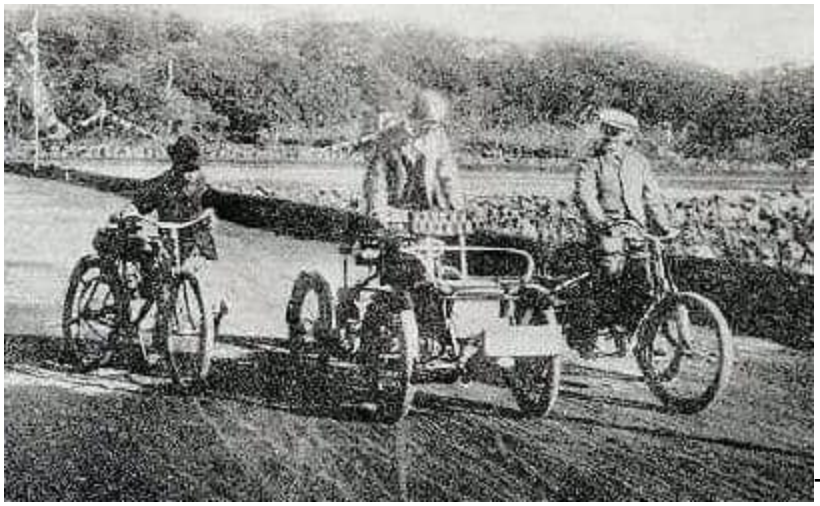
ENGINEERINGMAGAZINEdismissedmotorcycling as a “form of entertainment that can appeal only to the most enthusiastic of mechanical eccentrics…wethink it doubtful whether the motorcycle will, when the novelty has worn oī, take a □ðrmholdofpublic favour”.

AN ORIENTIN the capable hands of factory rider Ralph Hamlin won the □ðrstWestCoast motor-cycle race on the one-mile Los Angeles horse track. He beat three other bikes to win the 10-lap race in 18min 30sec (about 32 mph). The2hp Orient went on to set an American one-mile record of 1min 10sec (though at the stage US records were not recognised in Europe). Orients sold well, leading Marsh to abandon bicycles to specialise in motor cycling, sensible chap—an Orient was the □ðrstmotorcycleto be exported from the US to Europe. An Orient also won the □ðrstroadracein the US, between Irvington and Milburn, New Jersey(a distance of 10 miles) at an averagespeed of 31mph. Thecompany decided to concentrate on producing a ‘horseless carriage’; founder Charles Metz left to set up the Metz Motorcycle Company. His friend and employee, Albert Champion, a champion French bicycle racer who had arrived in the US in 1899 to becoming one of the □ðrstprofessionalmotor cycle racers, went on to establish the spark plug company that still bears his name: Albert.

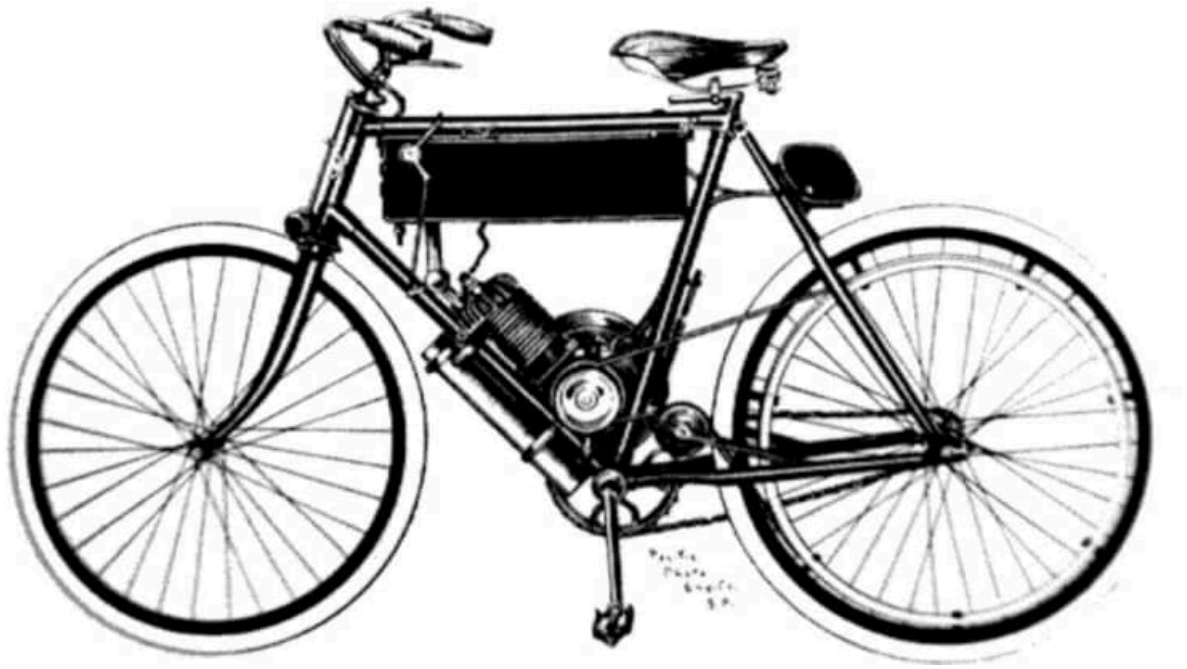
The Orient earned success on the track and was the □ðrstcolonialmount to be exported to the motherland.

Ralph Hamlin clearly knew how to handle an Orient.

ALSOIN THEUS, the Thomas Motor Company began to sell complete motor-assisted bikes and trikes under the name Auto-Bi and Auto-Tri. Before long it was advertising its bikes in Japan, with some success. That country's □ðrstrace, inTokyo, featured an Auto-Bi, an Auto-Tri and a French-made Gladiator quad. Theydid 22mph, 15mph and 18mph respectively.


Two, three and four wheels in Japan's □ðrstmotorcycle race.

THEMOTORCYCLEMAGAZINE(thisbeing the US magazine of that name; the Blue 'Un, if course, did not arrive till 1903) announced: "The California Motor Co has been organised at San Francisco…Whileautomobiles are in view, the immediate purpose of the company is the manufacture of a motor bicycle invented by RC Marks, formerly of Toledo, Ohio" (in 1896). Motor-cycle production lasted only three years but in its □ðnal year a California was ridden across the USA. You'll □ðndacontemporaryreport in the 1903 features section; it's a ripping yarn. Thename survived for a while back in Toledo as the Calfornia-Yalewhich, of course, evolved into the Yale.


The 1901 California. One of these powered bicycles carried George Wyman clear across the USA.

STOPMEAND buy one – the disc brake was patented by Frederick Lanchester.

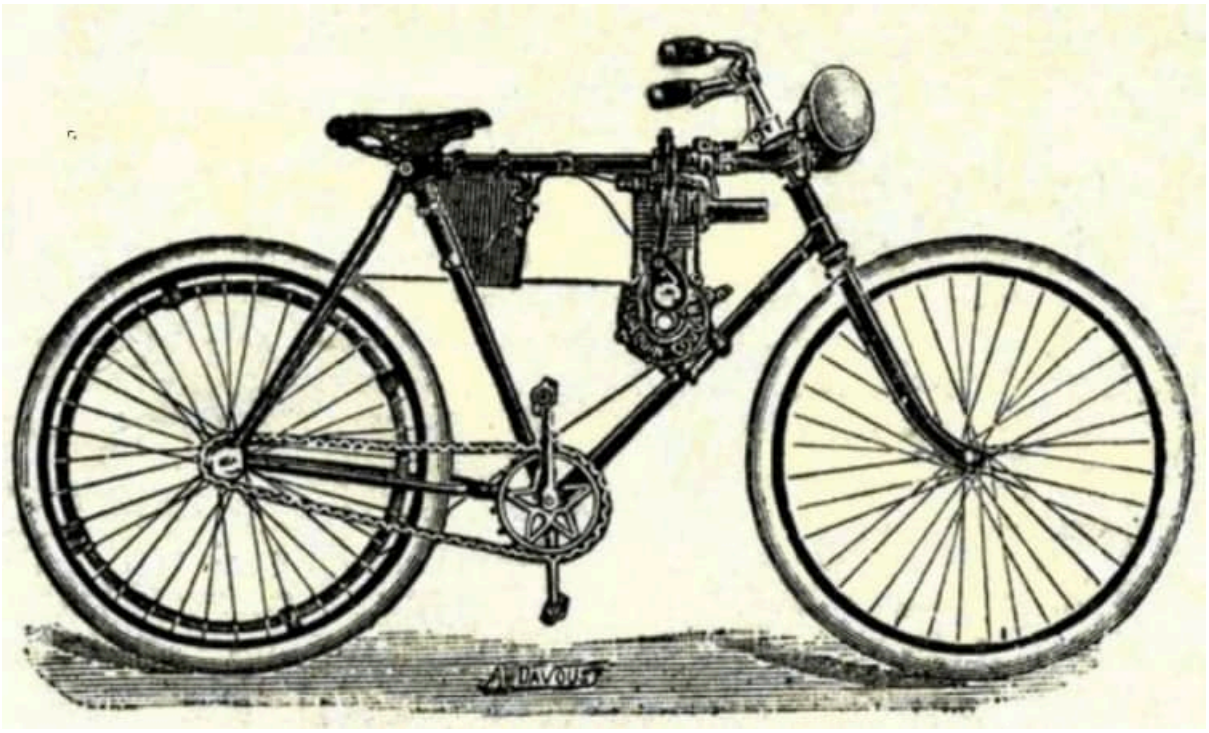
CL HOROCKDEVELOPEDatelescopic shock absorber, using a piston and cylinder inside a metal sleeve.

JOHN ALFREDPRESTWICHwould put Tottenham on the map with his world-beating JAP engines. He designed his □ðrstengineín1901, but it wasn't built until 1903.

"IT IS IMPOSSIBLEtopredict the future of these vehicles or the extent to which the objections…may be overcome by expert riders, and by those to whom their comparatively low cost is an advantage. Theyoīer…lightness, easy steering, single-wheel track and occupy small space. It is, however, felt that considerable skill is required to start most of them—and that in the case of sideslips and traīic they are heavy to deal with in emergencies, and are in that disadvantageous position of a rider dismounting in unpremeditated ways and suddenness." [What a wonderful euphemism for 'crashing'!—Ed.]

THESTANLEYSHOWwhich was, of course, a cycling show, featured 105 motor cycles; most with French or Belgian engines. So it comes as no surprise that The Autocar reported: "Perhaps the feature of the year is the motor bicycle. This form of mount, although not taking to the eye, appears likely to be frequently met with on the road next season. Most of the leading cycle makers have taken up the manufacture of motor bicycles, and it is quite obvious that they have much to learn—or perhaps unlearn—before a mechanically perfect machine will be produced. The prevailing idea at present amongst makers is to take the safety free-wheel bicycle and clamp to one of the members of the frame a petrol motor of about 1.5 brake horse-power. From the shaft of this power is transmitted by means of either a chain or belt to a pulley or large chain wheel secured to the rear wheel; to another member of the frame is secured a tank for storing the petrol—usually about a gallon—and hidden away as far as possible under the saddle is a storage battery for igniting the mixture of gasesin the cylinder of the engine. No change gearing is provided. When the rider wishes to go slowly he must stop his motor and pedal "for dear life. The weight of one of these machines is usually shout 70-80lb. Of course, there is a startling array of levers and taps, which appears to fascinate the unwary purchaser and gives him the idea that he is getting a good deal for his £50 or so. Altogether the result is not so satisfactory looked it through the engineer's glasses. Makers would do well to discard some of the principles underlying the construction of the bicycle and build from the motor, or include it in their general scheme, as one or two □ðrms have already done. Then smaller wheels than the standard bicycle wheels might be found advantageous, and give a more eīicient ratio of gearing. With the type of motor for the purpose little fault can be found. Enthusiasts are not wanting who maintain that the motor bicycle will eventually become as common on the roads as the ordinary bicycle is to-day. Although we are not disposed to agree with this glowing prediction, this form of machine, we must admit, does certainly oīer great facilities for travelling long distances in a short space of time, with slight eīort and with

a minimum of expense,a gallon of petrol being roughly suïicient to carry a person close upon one hundred miles on fairly good roads, and we shall watch its development with some interest."



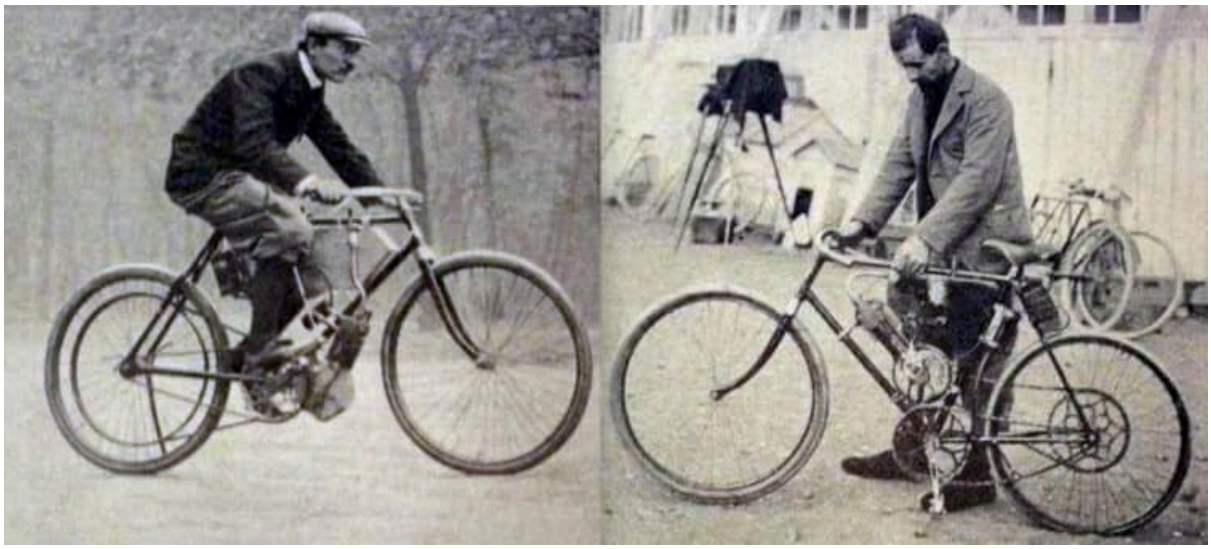
Parisian bicycle manufacturers Lurquin & Coudert □ðttedamotor (according to their 1914 catalogue) in 1901.

UNDERTHESOMEWHATPATRONISINGheading"L'automobile du pauvre" (The poor man's car) La Vie au Grand Air reported on the motor cycle class of the motor races at Parc des Princes in Paris. Ace rider Henri Cissac, completed the 100km event in 1hr 34min 25.2sec on a 3hp Chapelle motorcyclette, ahead of Barret on a Bruneau. The Sydney Morning Herald reported: "As a means of popularising the motor bicycle, and showing that the single track machine is a really practical instrument of locomotion, a race of 100 kilometres was organised on the Parc des Princes track. No machine was allowed to run that weighed more than 50 kilogrammes, and a second category was arranged for bicycles weighing 30 kilogrammes and less, and there were again sub-divisions in bicycles that run with and without the auxiliary aid of pedals, while prizes were also oïered for the machines using alcohol. The race proved to be a one-man aïair, for the bicycle ridden by Cissac, who won the motor bicycle event at Deauville, simply ran away from the others. Cissac's [Chapelle] bicycle has a 2-horse power motor placed at the bottom of the frame, while the belt passes over a pulley on the rear wheel. The machine ran with remarkable regularity, doing the kilometre in slightly less than a minute. He covered the 100 kilometres without pedalling in 1 hour 34 minutes 25.2 seconds, which is a world's record for this class of machine."

Weighing in at the Parc des Princes—bikes had to weigh less than 50kg.

Cissac (Chapelle) won the “Critérium des motocyclettes”. Also racing at the Park des Princes was this Werner—with its engine over the front wheel and no sign of brakes this was not a bike for the feint hearted.

A gold medal won by Henri Cissac.


Jolivet (Pecourt) took 2hr 24min 4.6sec to do the 100km; Barret (Bruneau) was runner-up in 1hr 46min 6.6sec.

“IN THE 558KM MOTOR RACE from Paris to Bordeaux the □ðrst eight motocycles were tricycles, and their times varied from 8hr 1min 0.6sec to 11hr 34min 52sec. The two motor bicycles in the race □ðnished within 20 minutes of each other, the □ðrst in 12hr 30min 55sec (over 40mph). The fact that the tricycles beat the bicycles so badly is due entirely to the diīerence in power. The latter were □ðtted with 1¼hp motors, while the tricycles employed abnormal 8hp aīairs totally un□ðt for ordinary usage.”

COURSE DE PARIS-BORDEAUX 1901
G. RIVIERRE sur sa Motocyclette Werner couvrant les 558 kilomètres en 12 heures 23 minutes

This contemporary postcard indicates that the magazine report I relied on was not quite accurate; in any case M Rivierre did damned well.

After a gruelling 8hr 3min run GeorgesOsmond was runner-up in the motor cycle class of the 327.6-mile Paris-Bordeauxrace. At this time trikes like his de Dion-Bouton counted as bikes and dominated the racing scene.

Another shot of Osmont in action, on a Griī on…

…andhere's Osmont completing a measured kilometre in 38.2sec to win the Deauville Cup. He had a busy season, going on to break the 100km/h barrier at Achères, where he's pictured (right) relaxing with a Gauloise after doing a mile in a record breaking 58.6sec.

Ein amerikanisches Kinderfahrzeug: Der kleinste Motor der Welt.
Phot. Stephen Leibb.

Meanwhile, in the New World…

FROMTHEAUTOCAR:"Consideringthe growing popularity of the motor bicycle, and the rapidly increasing number of riders of these machines, I am strongly of opinion that the time has come when a club for motor bicyclists is needed. Therecan be no doubt that the motor bicyclist requires to be specially catered for. He is undoubtedly out of his element among riders of ordinary. cycles, and, as regards joining in runs with motor cars, he is looked upon as being very small fry in the motor world. Feeling sure that there is a great future for the motor cycle, I shall be glad to hear from any riders who are disposed to form a club, so as to arrangea meeting at an early date to discuss the pros and cons.
T Underwood, Bayswater, W.

A SMALLGROUPOFmotor cycle enthusiasts got together at Frascati's on Oxford Street and decided to form a club devoted to the new pastime of motor cycling. Theyformed a provisional committee and, presumably after much soul searching, decided on a name for the □ðrstmotorcycling club: TheMotor Cycling Club. Two thoughts. Primus, Frascatti's was a popular watering hole among aristos and London glitterati, reminding us that, at its inception, at least, motor cycling was not the reserveof the hoi polloi. Secundus, following the tradition set by the British Army, in which the oldest regiments take precedence in line of march, everymotor cycle clubman on the planet should defer to bikes ridden by members of 'the' MCC on the road. [TheMCC is thriving and still runs

long-distance events including the Exeter, Land's End and Edinburgh long-distance trials. I joined in 1920 and while I'm not an active member am proud to wear the badge.]

Frascati's opened, in London's West End, in 1892: it hosted the □örstbikeclub meeting (which some sources indicate was held "in a cafe". Some cafe!).

At the time of writing the MCC is 123 years old.

GERMANEMIGREEALEXANDERLEITNERofRiga,a successful bicycle manufacturer, launched the Russian motorcycle industry by building a handful of De Dion-engined trikes in 1899; now he made some motorbikes, □ðtting2hpFafnirengines into reinforced bicycle frames, using a design licensed from the Werner Brothers. He marketed them as Rossiyas('Russias') and claimed to have produced 350 within a year. According to a contemporary advert: "In view of Russia's poor roads we have ensured that the frame is of extra strength, made using the best seamless tubes; it encloses the engine in a loop beneath the crankcase. Ignition by electric battery. Automatic belt tensioning. Free wheel with backpedal brake. Front wheel by stirrup brake. Low overall ratio for easy

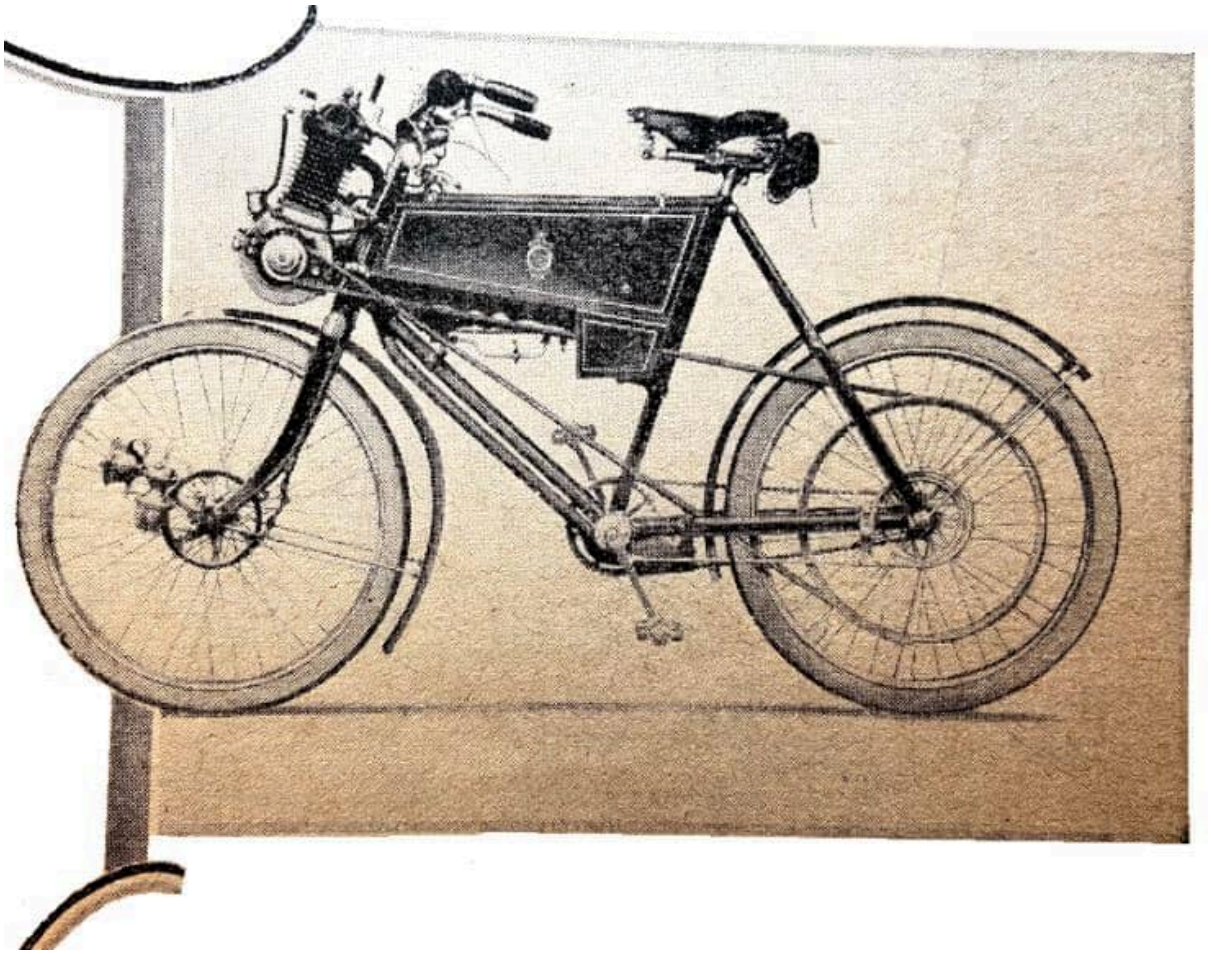
pedalling if engine has failed. Speed 6-40 versts per hour (4-26mph). Water-cooled engine optional."

The Fafnir-engined Rossiya ('Russia') was built in Riga, which was then part of the Czarist Russian empire.

CLEMENT'S FIRST motorcycle was the 1¾hp Autocyclette.

THE MINERVA engine was enlarged to 211cc/1¾hp and was capable of propelling a bicycle at about 30mph with a consumption of 150mpg. It powered the □ðrstmodels from Royal En□ðeld, Coventry-Progress, Phoenix, Quadrant and Ivel.

The □ðrstRoyalEn□ðeldmotorcyclesported a Minerva engine over the front wheel, a la Werner…



…Notethe crossed belt drive from the engine to the rear wheel.

EVIDENTLYTHEMINERVAINSPIREDthree Dutch lads, Frans, Anton and Adri Otten, to build a motor cycle in their dad's workshop in Breda. Theybuilt a dozen bikes, including what might well be the □ðrstladies'model; their sister Petra, according to her mum and dad, disgraced the family name by riding it in public—but the plucky lass rode it regularly for the next six years. The Otten competed in races on a local cycle track where it was said to havedone almost 45mph.

The Otten looks very much like the Minerva which inspired it, but the saddle looks more comfortable than the typical bicycle saddle of the time.

SCIENTIFICAMERICANREPORTED:"TheParis-Berlin motor carriage race was the most interesting ever held, although it cannot be said it was the most important for the industry, as the vehicles used in the race were not of a type which it is particularly desirable to advance…Theprecautionsadopted to protect the lives of spectators were most elaborate. For weeks the course was placarded with notices of the coming race. Soldiers and mounted police were picketed at short intervals throughout the whole distance, and all the towns and many of the villages were neutralised, every competitor being piloted by cyclist marshals at slow speed until the outer limit was reached. For a couple of weeks before the race, Paris was made almost unendurable from the odor (sic) of petroleum, and day and night were made hideous by the puīing of cars and the tooting Of horns. The automobile has never been popular with many of the inhabitants of Paris, and the peasants detest it, for these wild races from one end of France to the other are almost sure to mean maiming or death to some one, and the Paris-Berlin race was no exception to the rule, a man and child having been killed and a number of spectators and automobile drivers hurt and seriously injured…Therewere170 vehicles entered for the race, and 110 made the start and 30 □ðnished.Someofthe carriages made from 70-75mph; Fournier's the winner's net time from Paris to Berlin (744 miles) being 16 hours 6 minutes, or about 47mph. Thedistance was divided into three sections, the □ðrstday'stripbeing from Paris to Aix-la-Chapelle, 282 miles; the second

day from Aix-la-Chapelle to Hanover, 276 miles; and the third day from Hanover to Berlin, 184 miles…The enthusiasm at the West End race course, Berlin, at 11.46am when Fournier arrived, was almost beyond bounds. His friends broke through the line of troops, surrounded the car and cheered him loudly. The band played the Marseillaise, and the Germans carried him on their shoulders to the judges' stand and thence to the prize platform, which, like the winning post, was decorated with both French and German □ðags…It may well be asked if the limit of speed in racing vehicles has been reached…It is almost impossible for even a trained chauīeur to carry on such sustained high speeds for days without physical collapse, the nervous strain being intense." Charles Jarrott, a founder-member of The Motor Cycling Club, made his racing debut in a Panhard and reported: "It was a particularly happy idea of the French Club to hold a race between Paris and Berlin. The bitterness of

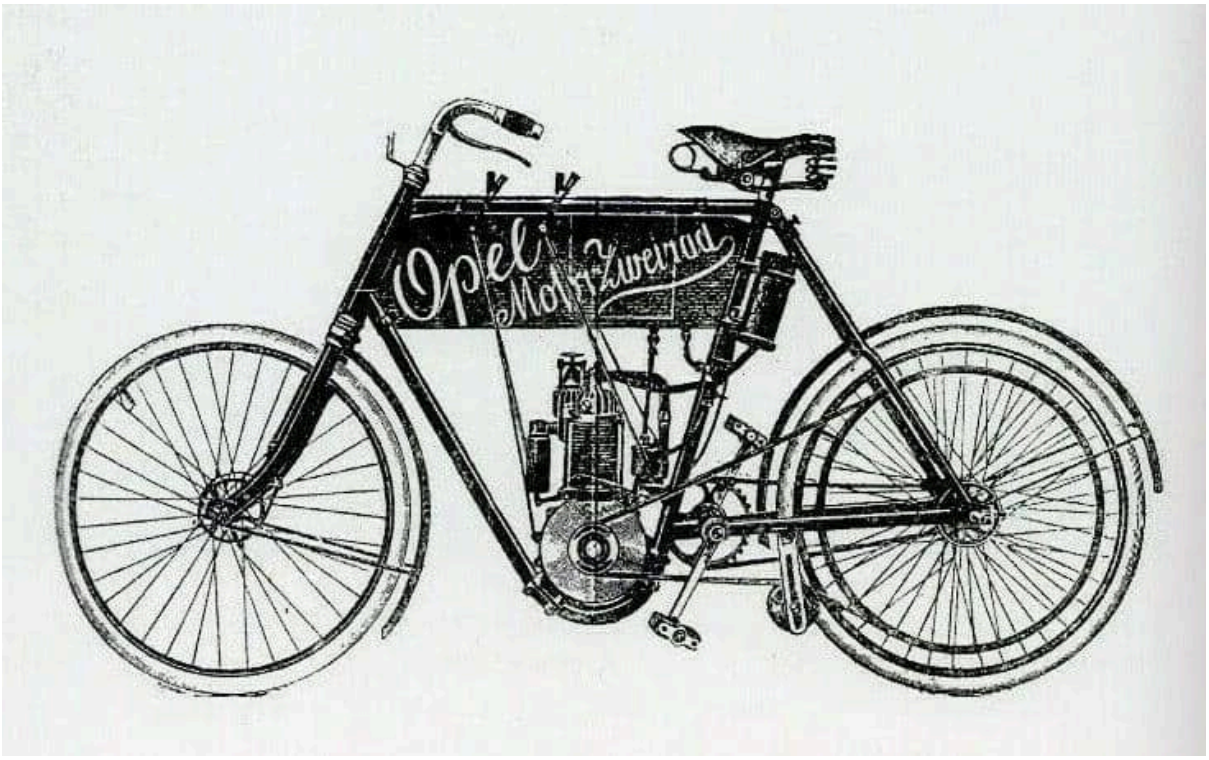
One rider, three bikes. Laurin & Klement works rider Narcis Podsedníček with the L&K Slavia Type C and the V-twin Type A, clearly photographed in the same studio, and (right) on the Type B he rode from Paris to Berlin.

the struggle of the seventies [the 'struggle' being the Franco-Prussian war of 1870-1] was still existent, and it seemed almost impossible that even in a sporting event the two nations could fraternize to the extent of opening up their roads for a race between the two great cities. Of the many wildly enthusiastic scenes which I have witnessed in connection with automobile racing, none were more enthusiastic than the □ðnish of Paris-Berlin. There were thousands of people there, and on my arrival I was dragged out of my car and embraced in a most aīectionate manner by dozens of people I had never before seen or heard of. The grime on my face was looked upon, I think, as a mark of honour, and it was only with the greatest diīiculty that I could get away to obtain a very welcome wash. Fournier had won the race, and as he explained to me afterwards, it was only with the greatest diīiculty that he had saved himself from being torn to pieces by the highly delighted Frenchmen and Germans at the □ðnish. Huge laurel wreaths were laid on the cars, tied with the French and German colours, and altogether the scene, apart from being historic, was unique in regard to the enthusiasm displayed by everybody concerned." Fournier won the Kaiser's Cup and 'the prizes of the Grand Duke

of Luxembourg'. Maurice Farman, who □ðnished□ðfth,wonKingLeopold's cup for the best time to the Belgian frontier. Giraud, who □ðnished14th,won'the prize of the Grand Duke of Mecklenburg'.Theyall drove oī in "a grand procession into Berlin itself. Thebig Brandenburg gates, only opened on great national occasions, were □ðungwide"andthe drivers sat down to a slap-up feed. Youwouldn't know it from these reports but motor cycles had a go too and one completed the course. Narcis Podsedníčekrode in on a Laurin & Klement Slavia B but by the time he staggered in at 3am the crowds had gone home and the timekeeping oīice was closed. Local cops con□ðrmedhisarrivalbut the organisersrefused to ratify his class victory and handed the trophy to a De Dion trike. But words spread: Laurin & Klement built some □ðnemotorcycles.

NSULAUNCHEDAmotorcycle named after its Neckarsulm factory (Neckarsulm Strickmaschinen Union). Having evaluated Minerva and Werner engines NSUsettled on the 234cc/1¾hp Swiss-made Zedel—in Nurenberg Victoria chose the same engine.

TheGermanpost oīice was clearly proud of the NSU.



Opel joined the rush to power with a 2hp model or, for a little extra, 2½hp.

Fred Osborn of Portsmouth, that's him in the picture, built a racing motor cycle by bolting a 4hp Automoto engine on to the front downtube of a racing bicycle. We'll meet him again after the Great War as OEC (for Osborn Engineering Co—accurate if not imaginative).

NEW IMPERIAL motorised a bike. It □ðopped, but the marque would be back in 1910.

RALEIGH POWERED up with a German Schwan engine over the front wheel; FN powered a bike with its own 133cc/1¼hp engine.

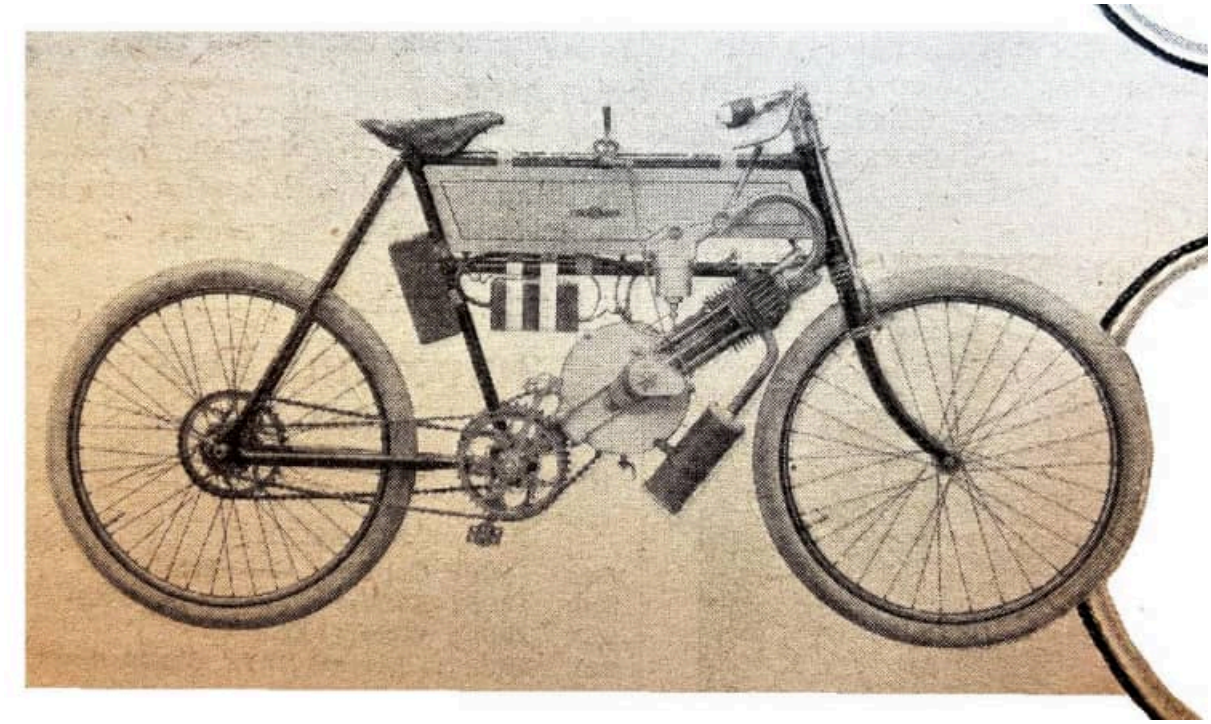
BILLY AND HAROLD Williamson set up the Rex Motor Co, making □ðnal-drive V-belts and, before long, motor cycles. Their □ðrst bike, 'The Mountaineer', was produced for the International Motor Co.

PEUGEOT'S198cc/1½hp MOTOBICYCLETTEdebutedat the Paris Exhibition. Its engine was mounted nice and low in front of the pedals, but it wasn't as successful as the New Werner.

While the New Wernersited the enginewhere the pedals used to be, Peugeotleft the pedals in place and clipped the engineto the front of the frame.

In Belgium Sarolea, which had been making bicycles since 1892, □öttedabikewith a 247cc 1½hp engine.

In France Terrot made its □ðrstbike,poweredby a Swiss-made 2hp Zedel lump.



Having played around with the hopeless Pennington engine Humber sensibly □ðtteda 2hp Phelon & Moore engine with all-chain drive. Thenew model was raced to great eīect by JFCrundall and Bert Yates.

BEFORETHEBIRTHOFMotor Cycling, in 1902, or The Motor Cycle, in 1903, there was TheAutocar. It appeared as early as 1895 when there were only a handful of cars in the kingdom and took an interest in two- as well as three- and four-wheelers. Under the

heading “Land’s End To John-o’-Groat’s on a motor bicycle”, The Autocar reported: Mr Hubert Egerton, of Weston Rectory, Norwich, has successfully accomplished a ride from Land’s End to John-o’-Groat’s on a motor bicycle. This is the □ðrsttime that the journey has been made upon this type of machine. The bicycle used was a Werner, of standard pattern, and of 1½hp. It was □ðttedwithan extra large oil tank, and carried suīicient petrol to run 120 miles without replenishing. The start was made at □ðve o’clock on Saturday morning, August 3rd, from the Land’s End Hotel. Exeter was reached after a capital run, and the journey continued via Bridgwater to Bristol, the last-named city being entered early in the evening. About twelve miles before reaching Bristol the inlet valve seat of the machine, which is rendered gas-tight by a copper washer, blew out, and Mr Egerton found, to his dismay, that he had no spare washers with him. He, therefore, had to ride his machine with the engine working at only a quarter of its power, he doing the rest of the work with the pedals, over about the most hilly ten miles of the whole course. At Bristol he experienced a delay of twelve hours before a supply of asbestos string could be obtained, with which he temporarily stopped the leak. Leaving Bristol at 10.10 on Sunday morning, he ran through Gloucester, Worcester, Bridgnorth, and Wigan to Preston. Here he stayed a few hours, and, leaving early on Monday morning, rode via Shap Fell, Carlisle, Moīatt, and (over what is called the new road, but which has by no means so good a surface as the alternative route) to Edinburgh, where he took the last ferry boat at Granton at 7.15pm. Immediately after landing at Burntisland rain fell heavily, and continued all the forty-one miles to Perth, this part of the journey being got through in darkness, and over very wet roads. Mr Egerton collided with the pavement just outside Perth, owing to his becoming dazed by the electric light, although going very slowly at the time. This collision carried away his brake lever and advance sparking device. Next morning (Tuesday), having □ðxed up the brake, he departed and travelled to Blair Athol, ascending the famous pass of Killiecrankie at a □ðnespeed. Up the ascent of the Grampians he had a most exciting race with a train on the Highland Railway. He headed the train unpedalled for the greater part, and beat it with ease with the aid of the pedals, until the summit of the pass was reached, when, of course, the train got away easily. Passing through Dalwhinnie and Inverness, Mr Egerton lost a good deal of time by availing himself of what he had hoped would have been the advantages of Kessock Ferry…After crossing this and the Michael Ferry he made for Golspie. Experiencing a severe gash in the back tyre of the machine two miles after leaving Golspie, he was forced, on account of impending darkness and the greasy nature of the roads, to abandon his intention of riding straight through to John-o’-Groat’s that night (Tuesday). On Wednesday morning, rising early, he rode over the Ord of Caithness, through Berridale and Latherton, to Wick, where he arrived at 9.30am. From Wick a telegram was despatched to the makers of the machine prophesying a speedy arrival at the journey’s end. However, Mr Egerton’s worst adventure was to come. Just after passing the second milestone beyond Wick, a cyclist,

travelling on his wrong side, held his course too long, and, despite Mr Egerton's attempt to avoid him, crashed into the motor machine, taking seven spok

1902

ENTREPRENEURCHARLESGarrardimported 160cc Clement engines which were □ðttedinto bicycle frames by JamesNorton and marketed as Clement-Garrards. Before long the □ðrst Norton motorcycles appeared, also powered by Clement engines and marketed as ‘Energettes’. Adolphe Clement was a bicycle manufacturer who had been working on developing engines since 1897. He also produced pneumatic tyres and owned the FrenchDunlop patents.

TheClement. Note the extra tubes on the front forks that are a step towards girder forks.

…here's a 1902 Clement survivor. Judging by the hairstyles and fashion this pic dates from about 1960—about half way between the Clement's date of manufacture and the present time.

…and here's another, spotted at a classic bike show about three miles from home on the Isle of Wight today (14 April 2024). It's still in use and has completed successful Pioneer Runs.

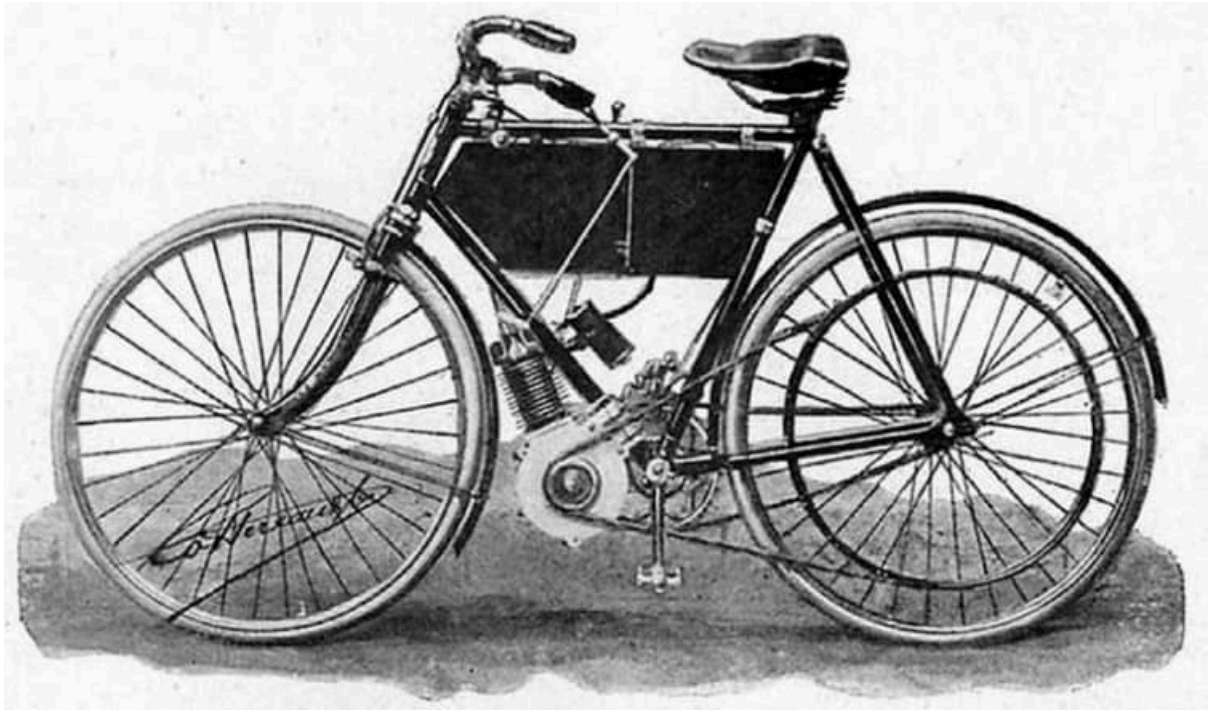
Up and running after 122 years.

The Clement Garrard

The Norton Energette.

Parisian bicycle manufacturer Griīon □ðtteda 1.5hp 198cc ZL engine and went into the motorbike business. This example is still running 120 years later.

The □ðrstPeugeotlookedvery much like the □ðrstGriīon; they both aded ZL engines to their existing bicycles. (Afew examples left the factory in 1901 with bulky surface carbs; these were soon superseded by Longuemare spray carbs). Prospective buyers were assured that “the engine was powerful enough to climb all hills”.



Cottereau was another debutante in the burgeoningFrench motor cycle industry.

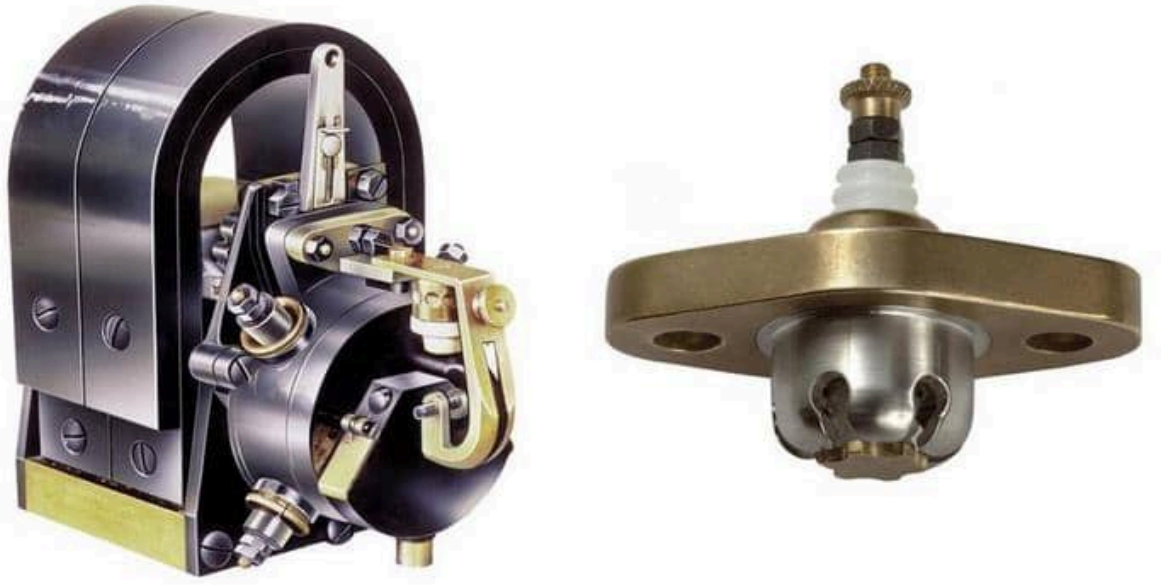
THECOURTSWEREbeginningto deal with motoring oīences. In Somerset one Alfred Nipper of Weston Super Mare was hauled before the beak summons for the way he was riding his 1898 Werner: “Then being the driver of a certain carriage (to wit a motorcycle) on a certain highway there situate called Bristol Roadunlawfully did ride the same furiously thereon so as then to

endanger the lives and limbs of passengers on the said highway." He was □ðned7/6d;worth about £40 today.

JAMES,WHICHHAD been making bicycles since 1872, □ðttedFNengines; Brown Bros branched out from parts and accessories into complete bikes marketed under the Vindec banner; the □ðrst Triumphs and the □ðrstArielsbothused 2¼hpMinervas. More than 75 marques on both sides of the Channel relied on Minerva engines, including Matchless and Royal En□ðeld.

MOTORCYCLINGWASa global obsession—the □ðrstbikearrived in Tasmania.

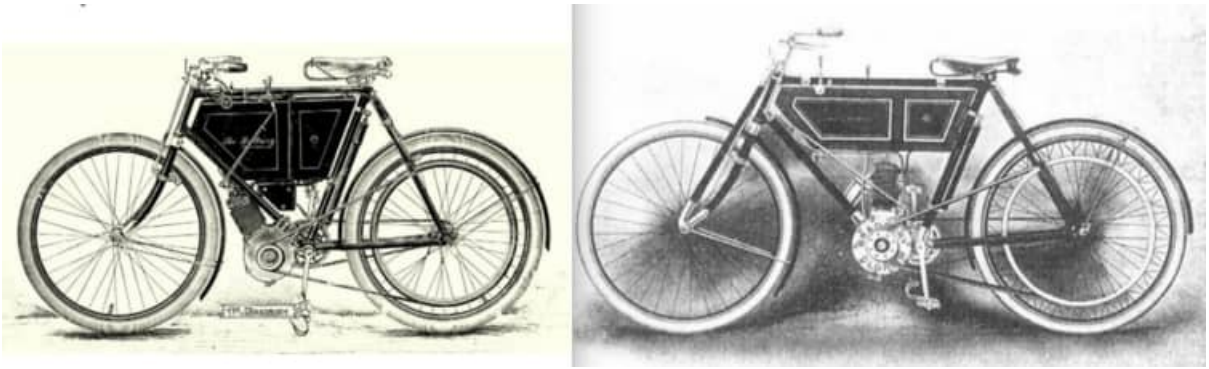
BOSCHLAUNCHEDa high-voltage magneto and spark plug. The mag included a condenser which enhanced its reliability. Other technical developments included a water-cooled engine from USmanufacturer Steīey; a V-twin engine from Zedelwhich was used on (French)Griīons; and a practicable drum brake, invented by Louis Renault (a less-sophisticated version had been used by Maybach the previous year).



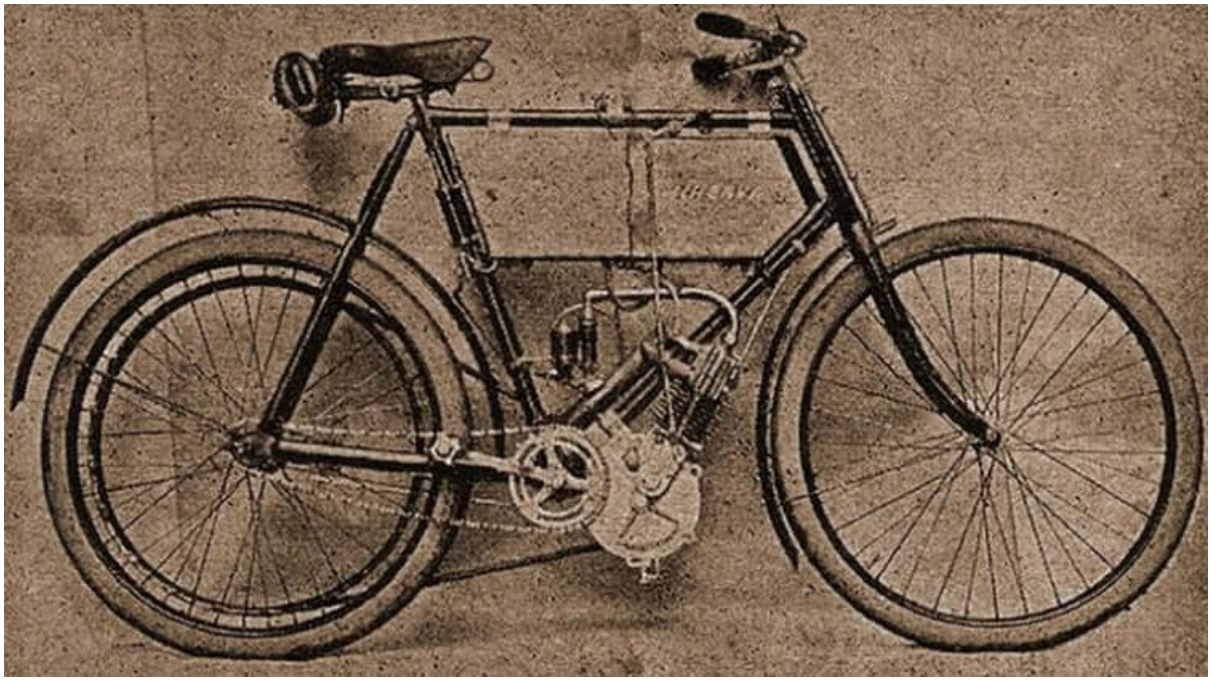
Bosch high-voltage magneto and spark plug.

OTHERNEWMARQUESincluded Montgomery, Brough (WE, George's dad), Bradbury (with a 1¾hp Minervaclip-on engine, from Oldham, Lancs), Simplex (in the Netherlands), Merkel, Metz and Yale(USA)and Victoria (Scotland) – not to be confused with the German Victoria, which was designed by the memorably named Max Frankenburger. In the USMarsh built a 6hp racer that was said to do 60mph.

"THE BORDMOTOR-BICYCLEisa machine that is being put upon the market at a very low □ðgure, and from what we could gather after a brief inspection and run, it is remarkably good value. The motor develops 1½hp, and is made be that reputed □ðrmtheFabriquesNationale, Belgium. It is □ðttedinavertical position in the large panel of the frame, and drives by a round belt on to the back wheel pulley. An outside □ðywheelandDe Dion contact breaker are □ðtted.Thecoil and accumulator—which, by the way, is a new and highly eīicient French make—arecarried in a neat case hung from the top tube. Thepetrol supply is kept in a cylindrical tank mounted on the handlebar, and feeds the motor through an indiarubber tube to the mixing chamber combined in the inlet valve.Regulationis eīected by a needle valveon the petrol supply and the spark advance lever. Thereseems to be plenty of power in the motor, and the total weight is 60lb."

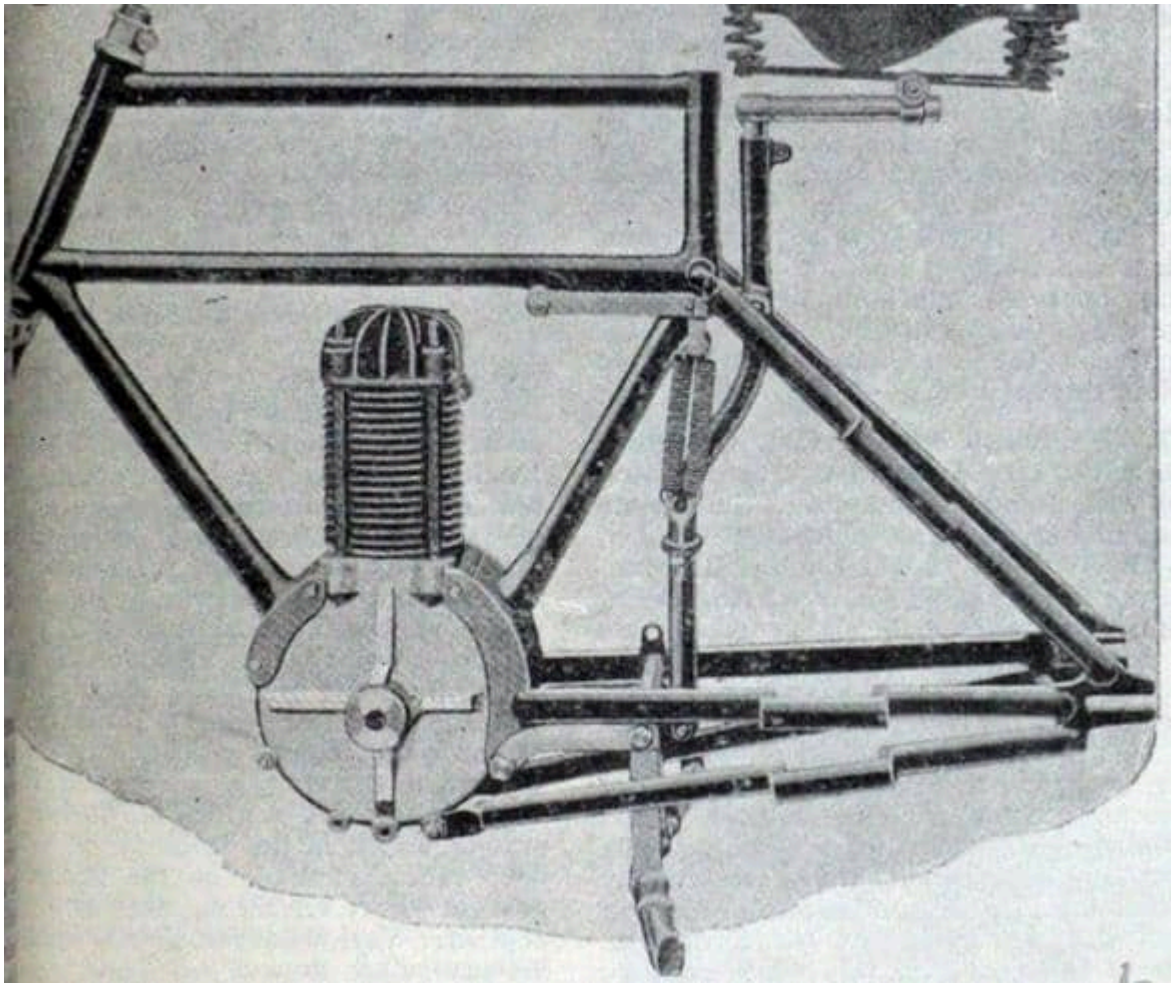


The Bradbury, (left) with a clip-on Minerva engine and (right) with a vertically mounted Clement-Garrard lump in the 'Werner position'.



By 1902 Minerva motocyclettes were available with a choice of four engines: 211cc 1½hp, 232cc 1¾ hp. 269cc 2hp and 331cc 2½hp. Only the 1½hp model could be □ðttedwiththe optional Phénix spray carb in place of the standard 'bubbler'.

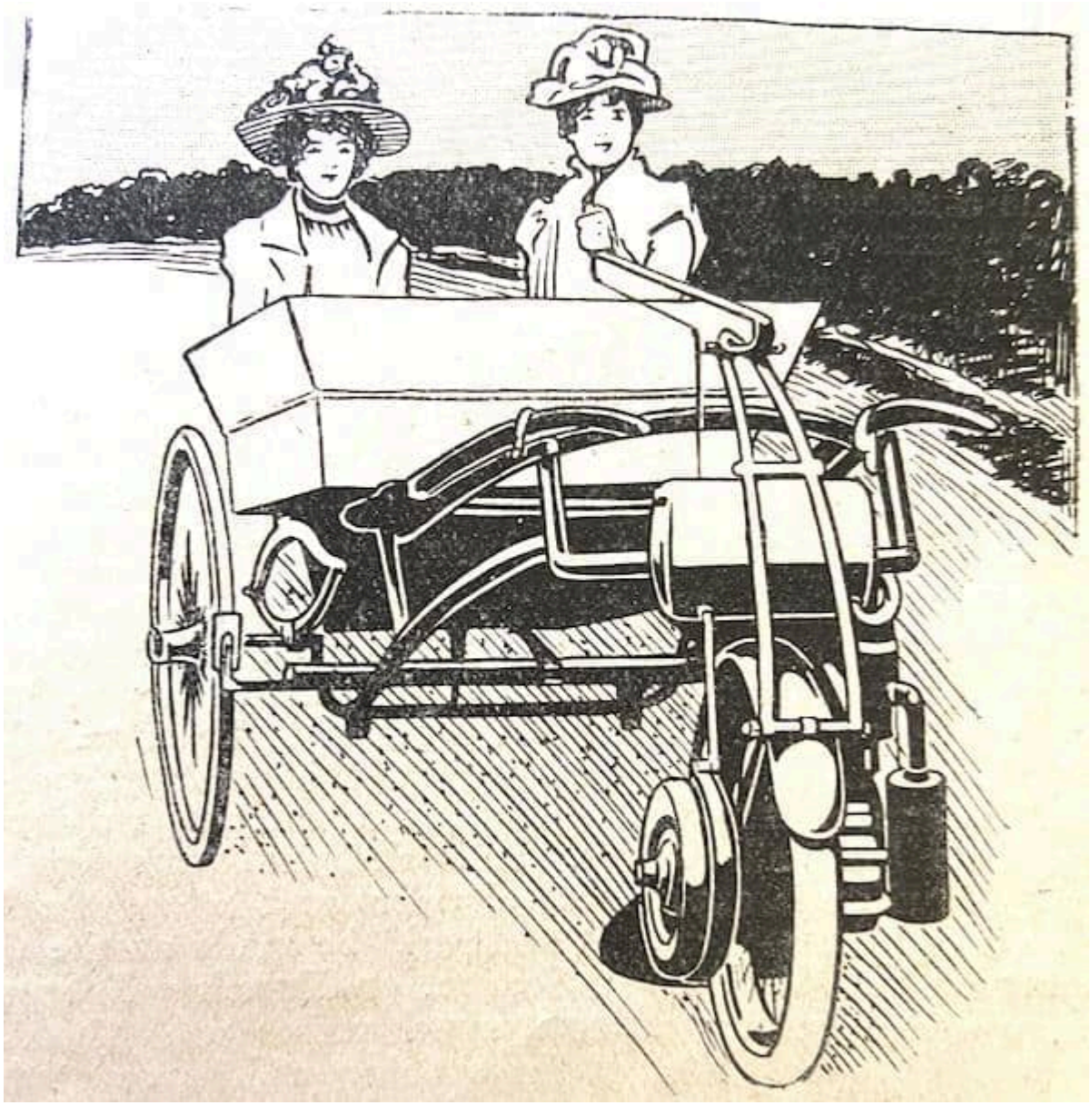
IF MATCHLESS(which was now □ðttedwitha 2¾hp MMC engine) was making Woolwich famous, the De Dion-engined BATwould do the same for Penge.BAT'sModel No 1 used a 2¾hp De Dion. Did BATstand for 'best after test'? That was the □ðrm'ssloganbut,more prosaically, the founder was Samuel Batson.



The Bat's rubber-sprung frame was well ahead of the □ðeld.

HAVING FINALLY put the Holden into production, Harry Lawson's Motor Traction Co launched an optimistic ad campaign claiming: "1902 will be a motor bicycle year". It was indeed, but not theirs. Few pioneers wanted the heavyweight obsolete fours and production ceased.

Another short-lived project from the Harry Lawson stable was the Motor Wheel: a 1½hp De Dion Bouton pattern lump with hot-tube ignition that replaced the pony between the shafts of a conventional trap. Later versions were made as complete vehicles with a tubular frame and sprung rear wheels; these were also produced in Chicago by the American Bicycle Company and sold as the 'Trimoto'.



Clearly taken from the same photo, this charming illustration appeared in the □ðrstissueofMotor Cycling above the caption: “Will the Motor adapted to any kind of carriage become a feature of the future? The above idea shows Lawson’s Gyroscope hitched on, and drawing a carriage along, instead of the horse propelling it in orthodox fashion.”

DEBUTOFTHEStanley Steamer car; two years later the Stanley Rocket set a world record of 128mph.

ERNESTHARNOTT,Captain of the MCC, was the □ðrstriderto complete a timed Land’s End-John o’ Groats run, in 65hr 45min, on a 2hp Werner. Following the run he noted: “I do not think that anyone who has not been over this route can have any idea of the diīiculties of the road. I certainly expected to □ðndtherideless trying than it proved. The journey includes, I suppose, some of the steepest hills and the roughest roads in the two countries traversed. It is a certainty that no more severe or practical test could be undergone, and the new type Werner has added one more to the long list of honours which it has already secured.” His epic ride went a long way towards ending the perception that the motor cycle was a toy; Motor Cycling said: “We have pleasure in devoting considerable space to Mr Arnott’s interesting account of his excellent,

motor ride, believing that performances of this kind accomplished on standard machines as oīered to the public are of the greatest value showing as they do the capabilities of the motor-bicycle for practical purposes."

"LAND'S END TO JOHNO' GROAT'S inside three days—It is almost impossible for anyone who has not been over the course to really appreciate all that is conveyed in the sentence that stands at the head of this paragraph. Eight hundred and eighty-eight miles at top speed; opportunities for rest very few; for sleep, very little; hills, numerous, long and steep rains at all sorts of times in the Highlands; roads as bad as they well could be in many places; the worry and the anxiety of the trial—all these things are enough to try the hardiest, to quench the ambitions of the most strenuous of record breakers. They have been the undoing of many a rider in the past, and, so far, few motor vehicles indeed have essayed the journey, and (fewer—greatly fewer—is the number which have succeeded in travelling from End to End. GP Mills [a champion pedal cyclist] was the most wonderful man on this record up to the time when he practically put an end to all attempts by going through in 3 days 5hr 49min. A marvellous ride that, simply marvellous; and on that last seemingly interminable stretch, the greatest battle was not with time, nor with roads, nor with weather, but with sleep. The motor vehicle brings new conditions with it.. The physical fatigue is, maybe, less, but brain fag is greater, and there is not the action of pedalling to help the rider in his □ðght with the desire to sleep. Of the motorists who have been over this route, none had succeeded in equalling GP Mills's time until the beginning of last week, when JW Stocks, on an 8hp De Dion Bouton car, and Ernest H Arnott, on a 1¾hp Werner motor-bicycle started from Land's End in the early hours of Sunday morning. Stocks accomplished the distance in 2 days 14hr 25min, and Arnott in 2 days 17hr 45min. Stocks had a few hours' sleep on the □ðrst evening, but thereafter he went right through without further rest for over 38 hours. Arnott on the other hand, snatched a few hours' sleep; but as 3am was the accepted hour for starting each day, the rest was by no means adequate. From the De Dion car and from JW Stocks a successful performance might have been expected, because we have now reached that stage of development in which con□ðdence in the machine and mechanism has been established. But even the most sanguine would consider that, for a motor-cycle and a motorcyclist, the tasks—over those fearfully rough roads and through those pitiless rains—would be almost too much. All the more, then, to the credit of EH Arnott and to his Werner for accomplishing it. The excellent impression created by this machine in the Paris-Vienna race is con□ðrmed in the Land's End to John-o,Groat's ride. A performance such as this is, to our mind, worth □ðfty of a fast □ðve miles on a racing track by a freak machine. It proves something; it teaches us that the motorcycle is not a toy; that it is a really sound practical vehicle, full of capacity and full of possibilities. It also proves this, that although the Holbeins, the Mills, an the Shorlands of one decade have left the sphere of cycle records, the next decade has its Bucquets and its Arnotts, and their in□ðuence for good, especially upon a sport and industry so young as is motor cycling, is undoubted." For a comprehensive review of the End-to-End, six-day and coastal record record rides, including Arnott's account of his run, check out the 1911 Features section.

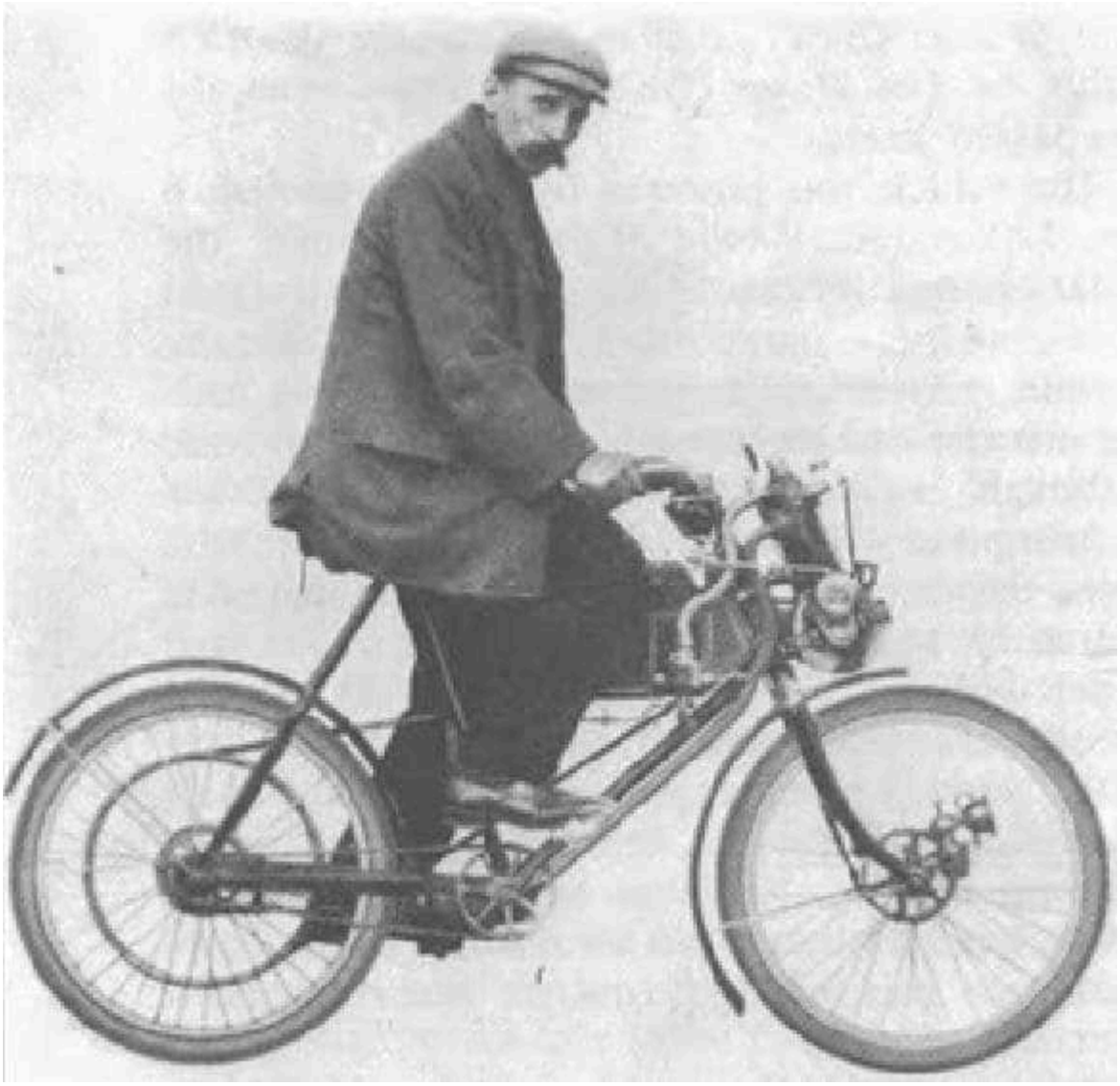
THE MCC ARRANGED a weekend run from London to Brighton and extended an invitation to all motor cyclists to join them. Only about a dozen bikes made the trek but this event deserves its footnote in history as the □ðrst club run.

THE ADOPTION OF A really simple and eīicient two-speed gear to the motor-bicycle Is undoubtedly a much to be desired feature, and at the present time a good deal of experimenting is being done in this direction…The power developed by small internal combustion engines is

largely determined by the rate of speed at which they run, and below a certain point the power is by no means directly proportionate to the speed. Now the problem arises as to whether the weight of the motor-bicycle must be increased as a result of □ðttinglargermotorsto get the power for hills, or retain the small dimensioned motor of 1½hp and □ðtatwo-speedgear. The averagerider of a 1½hp motor. bicycle is, as a rule, satis□ðedwithits running on moderate roads, but now and again hills are met with that even hard pedalling will not suīice to get the machine up; this is simply because the speed of the motor drops below the critical point, at which point the power falls oī rapidly. This is where the two-speed gear will score, viz, by allowing the motor itself to run at constant speed and always develop its maximum power."

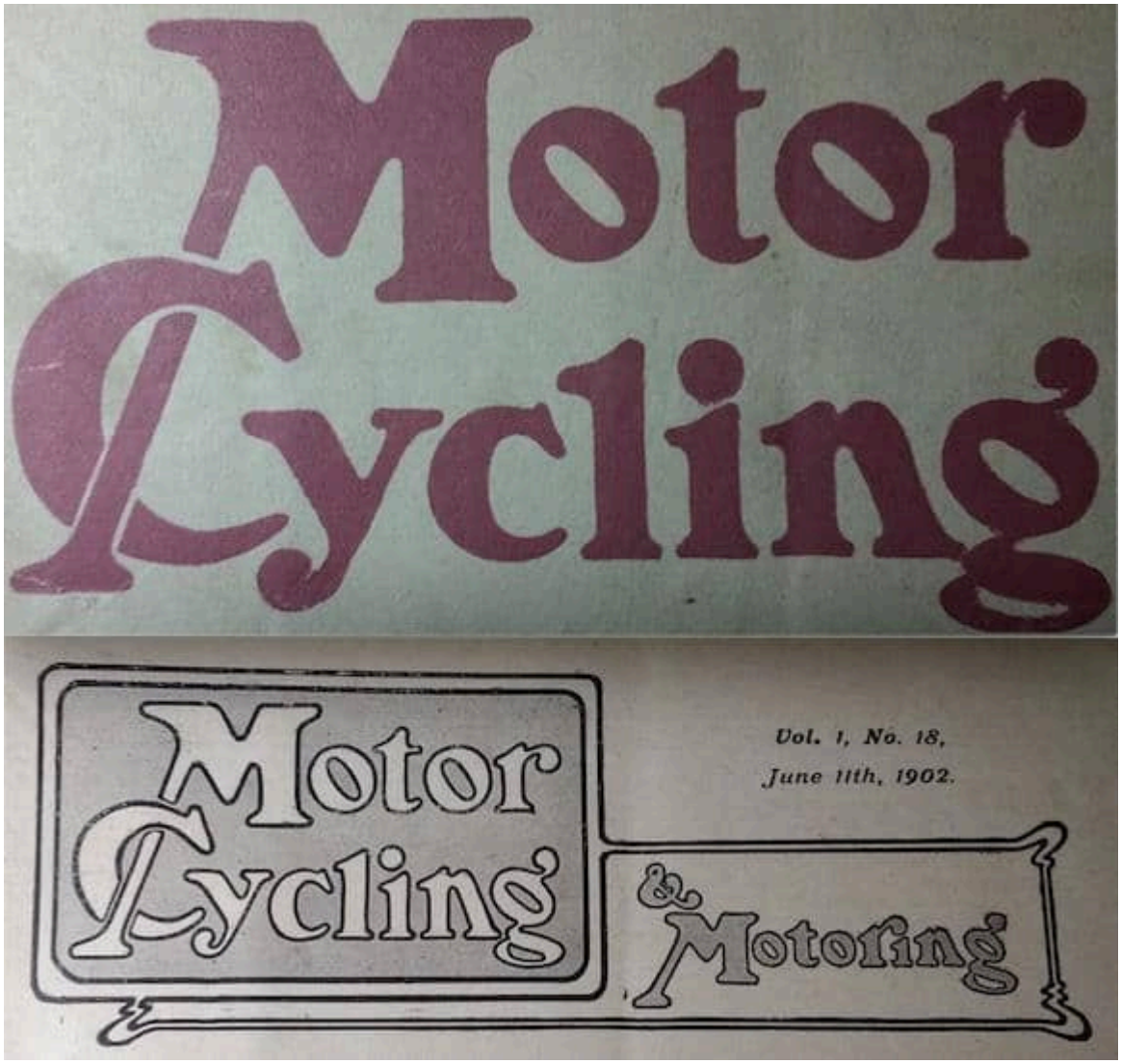
CLARENDON, JAMES, Quadrant, Bradbury, Rex, New Hudson and Phoenix were among British manufacturers to follow the New Werner's lead by mounting their engines vertically at the bottom of the frame. Ditto Continentals such as Peugeot, FN and NSU. Light Motors produced a lightweight clip-on engine.

FN knew exactly where to stick its engine.



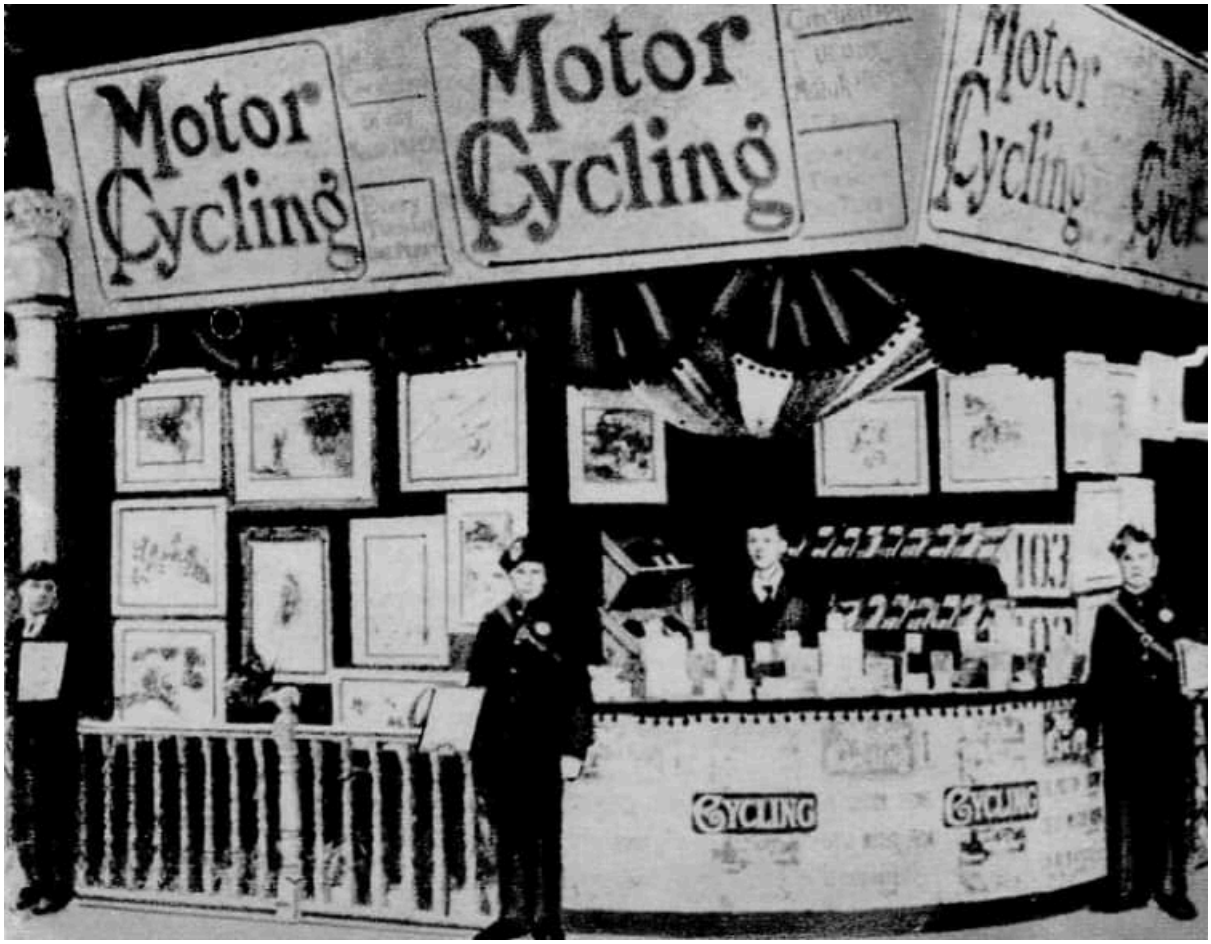
Royal En□ðeld□ðtteditsown239cc/2¾hp engine over the front wheel.

TEMPLEPRESSlaunched Motor Cycling and Motoring magazine (the □ðrstissue,produced by the staī of Cycling, was dated 12 February).After a few months the new magazinereduced its motor cycling content to concentrate on cars but Motor Cycling would return in 1909.

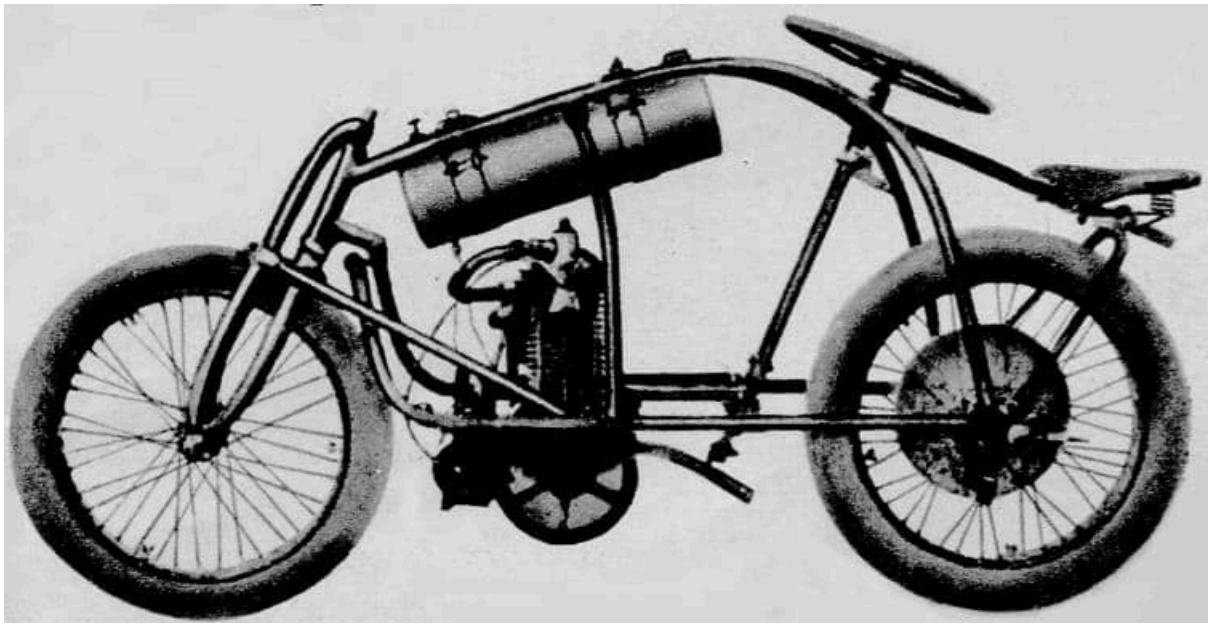


MOTORCYCLINGWASTHENAMEON the front cover; the masthead coyly added “and Motoring“. After 50 issues it changed to TheMotor, incorporating Motor Cycling and Motoring.

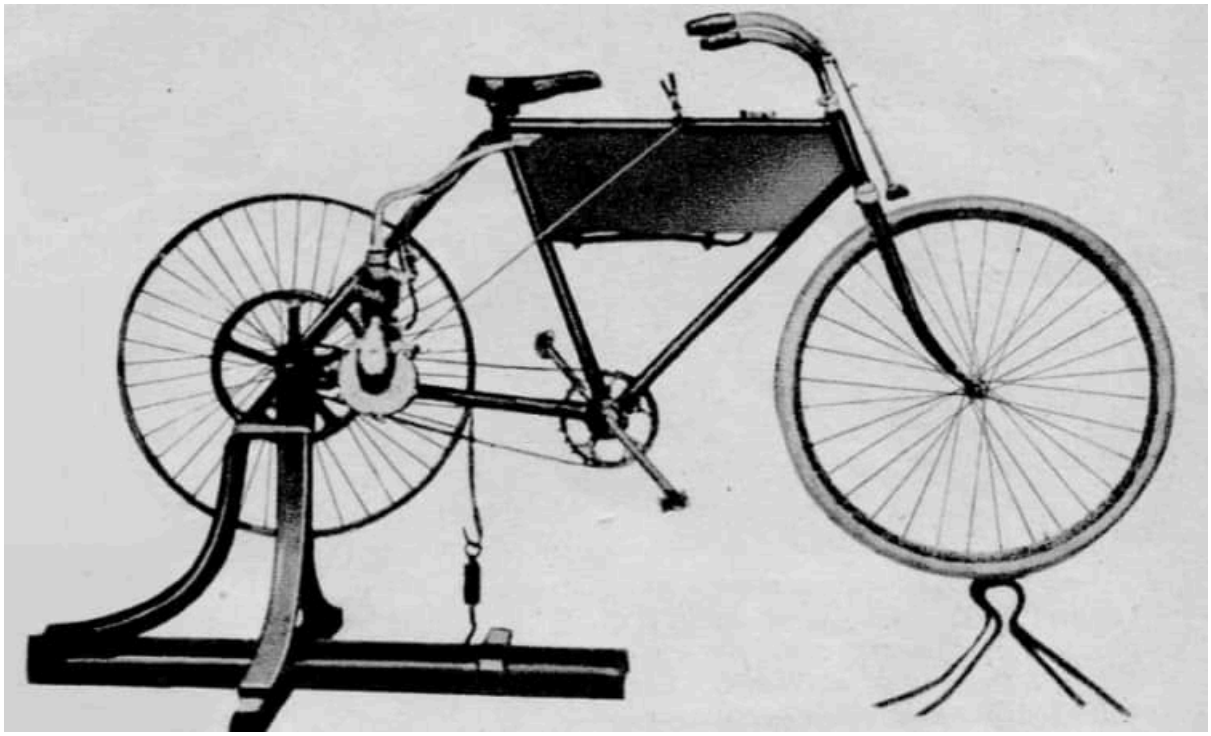
Here are a few images from the launch issue of the world’s □ðrstmotorcycle magazine.



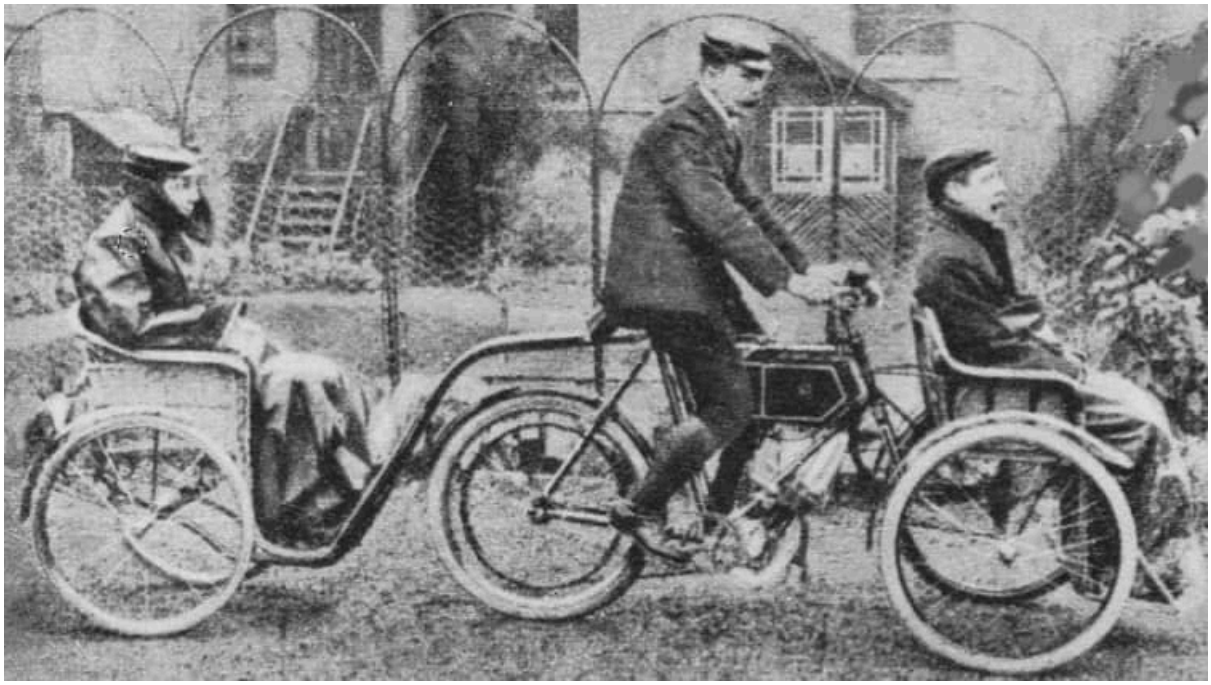
The first show stand by a motor cycle magazine was the Green 'Un's stand at the Automobile Show in London's Agricultural Hall. The nippers in the picture are members of the London District Messenger Service.



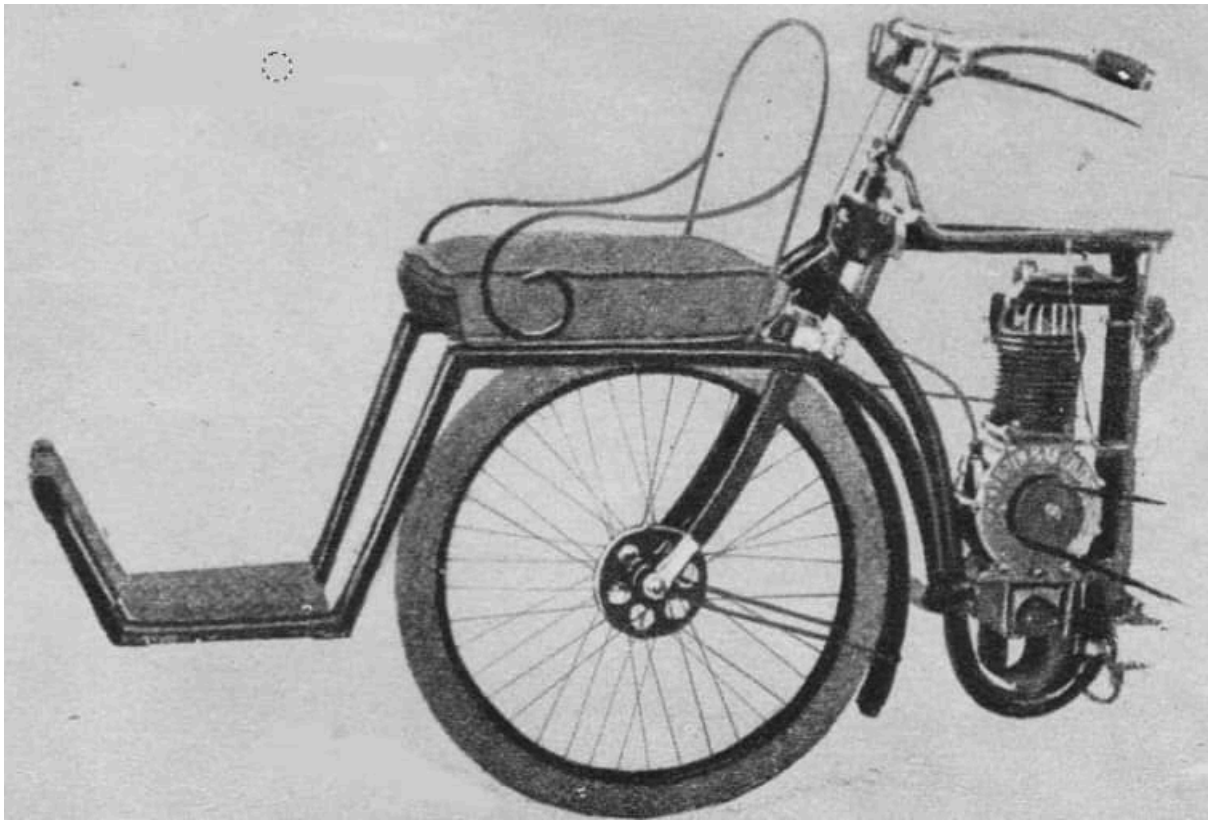
This cycle pacer, complete with steering wheel, was designed by French cycling champion turned motor cyclist Jacquelin. It weighed over 500lb and was powered by a single-cylinder De Dion engine with a capacity of 1,224cc. Now that is a big single.



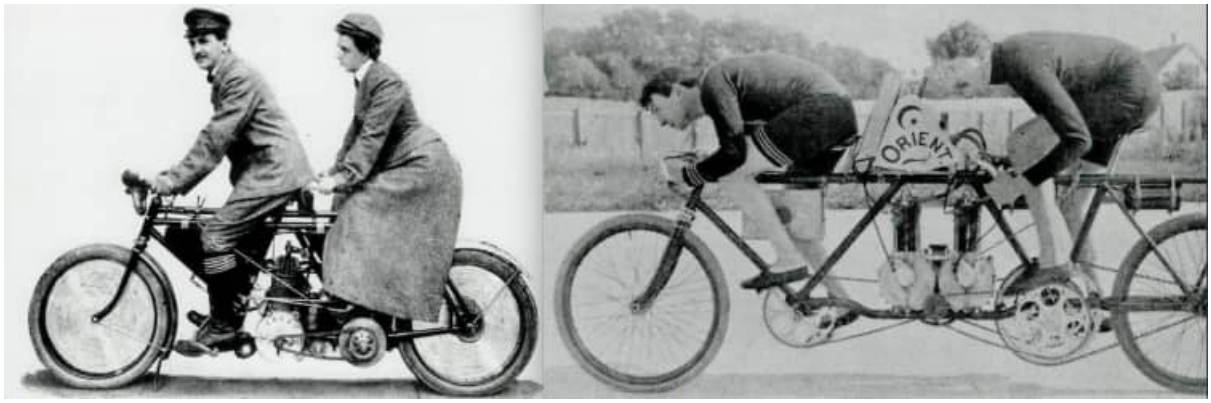
Bench-testing, 1902 style. “The Knap power unit turned the a tyre-less rear wheel aganst a load, applied by weights connected to a spring balance by means of a rope around the rim.”



“The owner of this 2hp Minerva certainly believed in getting maximum value for his money. The pessimistic passengers, when not pushing the out□ðtuphills, apparently had the choice between pneumonia and asphyxiation.”

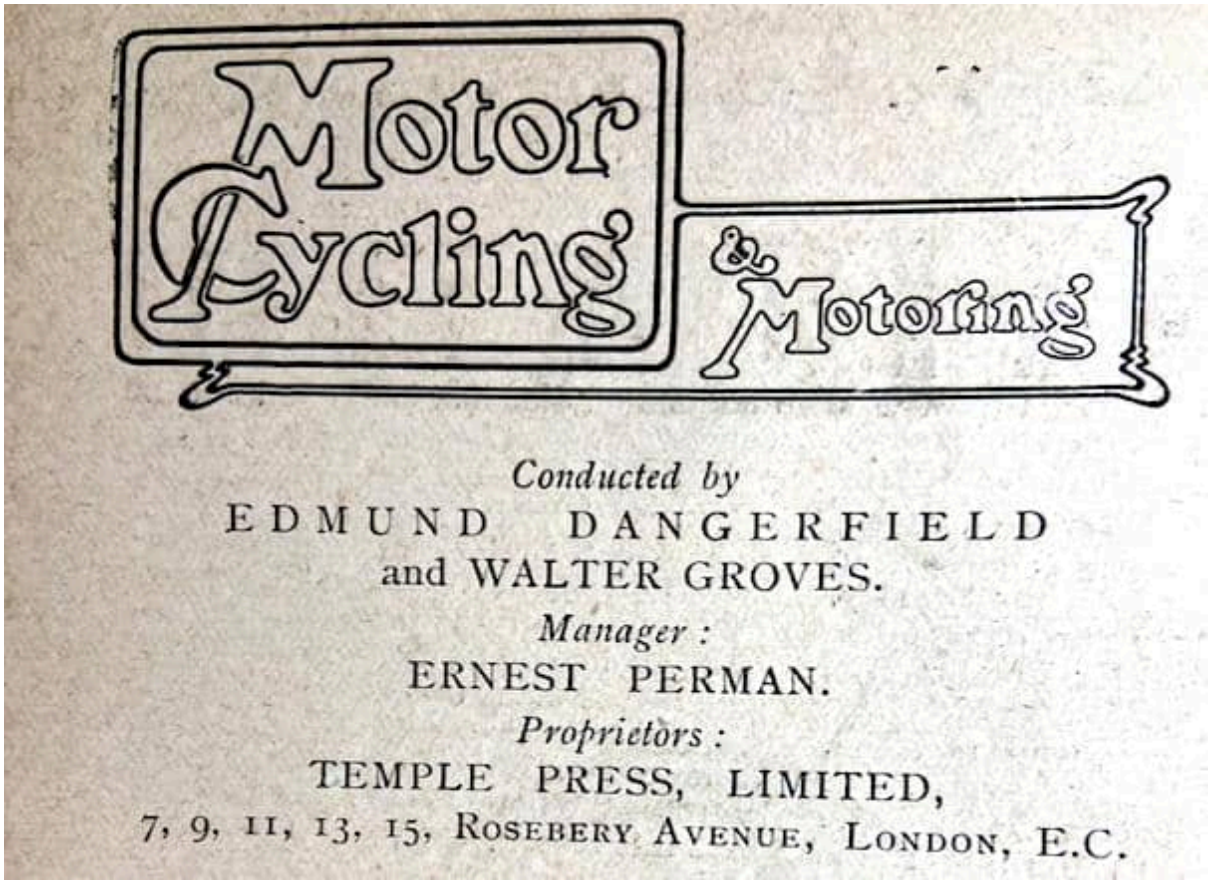


This seat, featured on a Laurin and Klement, was described as "a novel fore-carriage". Motor Cycling more accurately described it as "a death defying device for courageous passengers" but forecars would have their day.



There were forecars, there were trailers and, for more agile passengers, there were tandems—some for tourists, others for sportsmen (in this case seemingly sporting enough to □ðttwo engines).

The foregoing excerpts were culled from the 50th anniversary issue of the Green 'Un (discovered by chance at a Kempton Park autojumble). Since then, as you might have read in the site's blog, I've invested my children's inheritance in the four volumes of *Motor Cycling* covering 1902-4 (Sorry Harry, sorry Katy). As I work through the volumes I'll be moving these pics and placing them in context but will no doubt be anomolies—as always, this timeline is a work in progress. Let's get started, with the original masthead and the □ðrst words of the □ðrst issue of the □ðrst volume…



"IN DISCUSSINGTHEMANYDETAILSofa new paper the primary point is, or should be, a serious and lengthy consideration of the problem—Is it wanted? This all important question has received the most careful attention of those who are responsible for the production of No 1 of Motor Cycling, and we are □ðrmlyconvincedthat this, the □ðrstattemptat a journal specially devoted to motor cycling, is fully warranted by present conditions and. future prospects. To ensure success for a new paper, there must be good reasons for starting it. Thereasons for starting Motor Cycling are many. In the □ðrstplace,greatinterest is being taken in the new movement by the public. This is proved by the fact that the readers of Cycling placed the motor bicycle at the head of a list of desirable innovations and gaveit a good majority. At the two bicycle shows, the interest in motor bicycles thoroughly justi□ðedthevoiceof Cycling's readers, and since the shows the public interest in motor bicycles has been daily increasing. It is not necessary to go far in search of a reason for this interest. In the motor bicycle we have the cheapest. handiest, lightest and simplest power-propelled vehicle that has yet been introduced. Themajority of cyclists have followed the motor movement from its inception, and wherever motor events take place one will always □ðndpresenttheinevitable little crowd of interested cyclists. To many thousands of riders of cycles the luxurious motor car is a forbidden pleasure on account of its prime cost, and the expenseof maintenance. But in the motor bicycle the cyclist has a vehicle that particularly appeals to his fancy, and his pocket. It is a machine he can ride and drive at once; it is a vehicle he can keep in the house like an ordinary safety bicycle, and he can always get home on it should anything by chance go wrong. In a word, the motor bicycle will introduce the pleasures of moting to thousands of cyclists who would never otherwise be able to participate in the new pastime; and it is safe to assume that at the present time some thousands of riders of ordinary bicycles will he interested in the development of the motor bicycle. With all these facts in mind it was not diīicult to foreseea

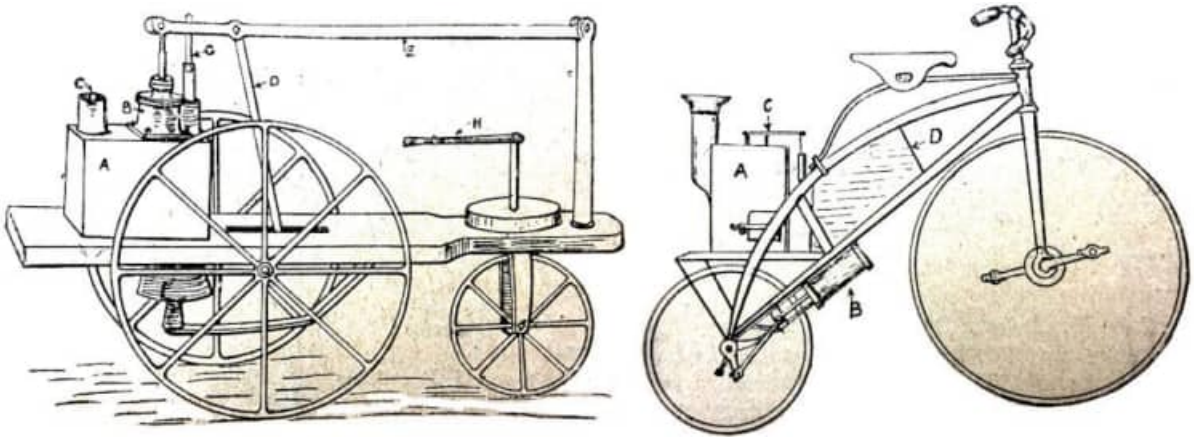
very considerable development in the motor cycle and in motor cycling, and we were brought face to face with a full realisation of the fact that we could not possibly devote the necessary space in Cycling in which to deal adequately with such an important and such an expansive subject as motor cycling, without a considerable, and, in our opinion, an unjusti□ðable encroachment upon space that should be rightfully devoted to other purposes in the interests of the cyclist. A full consideration of all these points decided as that if the subject was worth dealing with at al1, it was worth dealing with thoroughly. If this movement is capable of such rapid development as we □ðrmlybelieveitto be, some steps should be immediately taken to provide for its its immediate and future expansion, and we unhesitatingly decided to provide such means at the outset by launching this journal, the principal objects of which will be: To closely watch the interests of motor cyclists; To encouragemotor cycling as a pastime; To be □ðrstoutwithillustrated motor cycling news; To describe and boldly illustrate the latest new inventions in connection with the motor cycle; To further the motor cycling movement by every means in our power; To advance the interests of the motor cycling industry. To these objects we shall devote ourselves assiduously, and with the co-operation of our readers, which we cordially solicit, we hope to make Motor Cycling thoroughly useful, entertaining and consistently interesting. Thereis one point we must particularly emphasise—that Motor Cycling will be absolutely unfettered in its opinion and in its policy. We shall not hesitate to speak out when speaking out is necessaryin the interests of sport, pastime, or trade, anti the cause of the motor cyclist will always be our □ðrstconsideration. Six short weeks ago the □ðrstannouncement concerning this publication made its appearance. It has been a busy time, but there were several reasons why briskness was necessary, not the least of which was the impending opening of the Crystal Palace Exhibition and the importance of dealing with the exhibits in an adequate manner in the early issues of a journal devoted specially to the new pastime. Motor Cycling now awaits the result of our readers' careful scrutiny and candid criticism. Is its existence justi□ðed?Attheoutset we stated that the subject of motor cycling could not be adequately dealt with except by means of a special publication, and we venture to assert that the matter appearingin this issue is in itself proof of our assertion; indeed, but our diīiculty has not been one of □ðndingsuīicient 'copy', but of □ðndingsuīicient room. Even at this early stage our pigeon-holes are well occupied by a great variety of striking articles, for which it is quite impossible to □ðndspaceinthis issue. It has been our endeavour to obtain the views and opinions of not only the best known authorities upon our particular subject, but also to bring to the front talent which we felt con□ðdentwashidingits light under a bushel and which would be fresh and welcome to us all. It is our intention to give every encouragement to expressions of opinion from everypossible quarter, for. dealing as we are with a subject comparatively strange to all, we feel that a common expressionof views and ideas will be the quickest and soundest manner in which the movement can be advanced. Themotor cycle is in its infancy, but we arc sure that when the cycle mechanics and amateur enthusiasts of this country settle down to the subject, improvements will be rapid and new ideas plentiful. We think it will be admitted that our advertisements give ample evidence that such an industry is already established; had there been more time at our disposal this evidence would have bean considerably stronger, but when we state that no single announcement has been received upon any other terms than those of strict business character, the amount of work involved will perhaps be appreciated. We wish to state plainly that the existence of this publication will not be dependent upon charitable or even friendly support in its advertisement department, but, like its predecessor, will rely entirety upon its merits, and the prospect of being able to bring sound business results to those whom it will always be a pleasure call our clients, but with whom business relationship will be one of mutual advantage. We are now content to leave the diagnosis of our case in the hands of our friends

many of whom have already rendered us valuable assistance, and to whom we accord our heartiest thanks."

This illustration, simply captioned 'Evolution' appeared appears in the □ðrstvolumebeforethe □ðrstissueunderthe legend: "Supplement to No 1 of Motor Cycling February 12th, 1902— presumably it was issued as a poster. If you've read this timeline from the beginningyou'll recognise the Draisine, or hobbyhorse; the velocipede and the 'safety' bicycle.

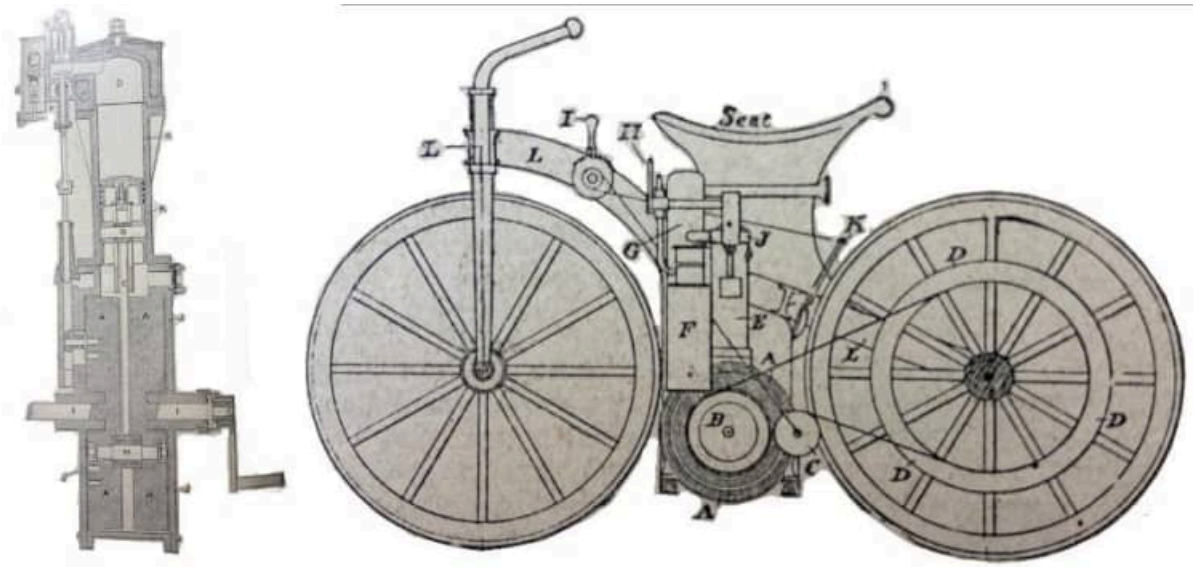
The □ðrstfeaturein that □ðrstissuewas the □ðrstathree-part review of motor cycle evolution, including"some motor bicycle history which goesto showthat motor bicycles were engagingthe attention of inventors so far back as 1781…"You'll □ðndDaimler's1885 Einspur and the 1895 Hildebrand & Wol□ðmullerwhichalready appear in this timelines, as well as many forgotten pioneers with external and internal-combustion power. It was introduced as "some motor cycle history, and some personal experiences—by AnthonyWestlake".You really couldn't ask for a better introduction to the state of the motor cyclingnation. Overto you, Tony.

"IN GIVINGSOMEEXPERIENCESanddescriptions of many motor cycles, my mind is inadvertently led back to re□ðectuponnumerous men who essayed, even in bygone centuries, to make mechanical locomotion a practical thing; and now that this is with us in all its present force, the somewhat crude and cumbersome eīorts of those anachronic geniuseshavea strange pathos about them. To me they appeal strongly as my own early mechanical dreams were all in this direction, and I made many early eīorts to realise them, which circumstance brings me to my □ðrstexperienceinmotor matters, due to a fractured back hub on my safety in 1891. A friendly engineer on a traction engine entered into consultation, and □ðnallyvolunteered a lift to within a quarter of a mile of my destination. Theacquaintance afterwards



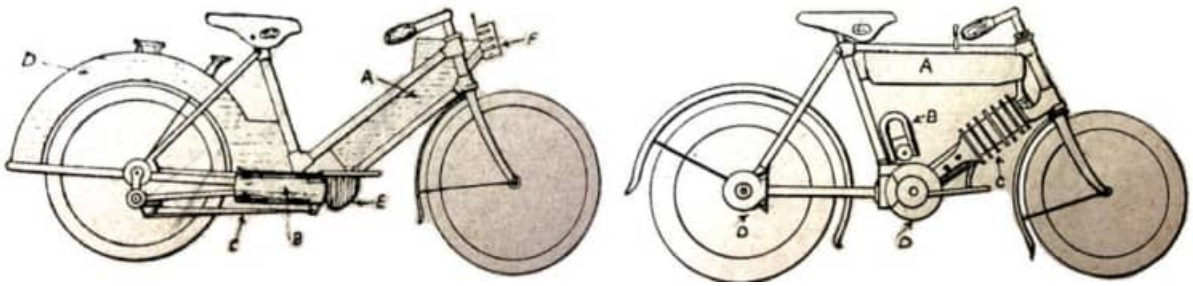
L-R:“Fig I: Murdock’s motor cycle 1781—A, Boiler; B, Cylinder; D, Connecting Rod; E, Beam; F, Furnace; G, Valve Stem; H, Steering. The larger model had wheels of 20in and 9in respectively, and was some three or four feet over all. Fig II: Steam motor bicycle exhibited at the Paris exhibition of 1878—A, Boiler and Furnace; B, Cylinder; C, Safety Valve; D, Fuel and Water Tank.”

ripened, and my progression in the art of driving increased until one day I managed with some adroitness to place the machine partly on its side in a ditch. I will draw a veil over the sequel, for with a maximum speed of nearly □ðvemilesanhour, and the now nearly-universal wheel steering, it was a wild and thrilling time; and so now, with middle age coming upon me, and my 1902 racer (with a steady plod of □ðftymilesorso) in view, I settle down to a quiet and respectable view of life. But allons a nos moutons, or perhaps more correctly a nos velos. My personal interest in motor power applied to bicycles was of even earlier birth At the French Exhibition of 1878 there was exhibited a steam motor bicycle, the invention of a Swiss mechanic, whose name I quite forget and which I have been unable, for the present, to obtain. I give a rough drawing (No 2) from memory of this machine. The wheels were of hickory, with iron tyres, which had been superseded by the suspension wire-wheel in England some years before the date of which I speak. I have no knowledge of any records made on this machine, the boiler, according to my impression, being too small for any ride longer than 100 yards. In appearance it suggested a wild caricature of the Holden motor bicycle, which most of us I think know by sight. The engine drove direct on to a pair of cranks attached to a small back wheel above which the boiler was placed, the rider sitting in the ordinary position common to the bicycles of those days. But a century previous



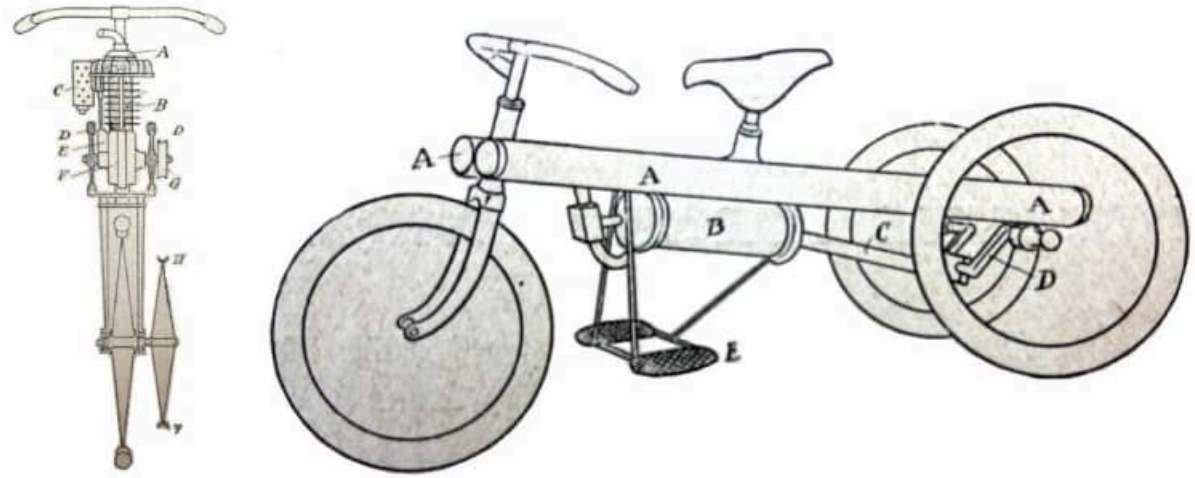
L-R: "Fig III: Section of one of Daimler's engines 1880-5—AAAA, Flywheels; B, Piston and Wrist Pin; C, Piston Connecting Rod; D, Combustion Chamber; E, Inlet Valve; F, Exhaust Valve and Stem; G, Ignition Tube and Lamps; H, Crank Pin; II, Axle Bearings; JJJ, Crank and Fly Wheel Case; KK, Cylinder. Fig IV, Daimler motor bicycle 1885—AA, Crank Case; B, Engine Pulley, Driving Strap, and DD, Driving Wheel Pulley; C, Jockey Pulley for tightening Belt D; E, Cylinder; F, Petrol Tank; G, Carburetter; H, Mixture Valve and Lever for altering same; I, Lever and Ratchet for tightening Jockey Pulley C; J, Valves and Lamp; K, Brake; LL, P Frame."

to this masterpiece (1781), Murdock, Watts' foreman, had designed and constructed a small road carriage, or rather tricycle. See footnote. Small as the model was (I append sketch and dimensions), it proved however, from the mechanical point of view highly successful, for on one of its trials, made in the evening, on the road in front of Murdock's cottage, it literally ran away from its inventor, and charged down the street at twelve miles an hour, scattering □ðrecinders, steam, and the villagers in all directions; the last-named □ðedshriekingthat'Satan was unchained again. It ended its comet-like □ðightinthehorse-pond, and its inventor nearly followed it. Murdock, under Watts' persuasion, very reluctantly abandoned his motoring ideas. Apropos of Watt, a warning to inventors. When □ðrstdesigned, hisengine and its piston and mechanism for transforming rectilinear into circular motion by means of the crank (before then never used in conjunction with steam and so constituted a valuable patent) being much elated with



L-R: "Fig V: Hildebrand-Wolfmuller 1895—A, Carburetter and Petrol Tank; B, Cylinder; C, Rubber Straps; D, Water Tank; E, Case of the Ignition, Lamps and Tubes; F, Air Inlet and Mixture. Fig VI: Heigel-Wegulin 1896—A, Carburetter and Tank; B, Magneto Dynamo; C, Cylinder 4″x4″; DD, Crank case and bevel gear. NB—No □ðywheelwas□ðttedtothis machine as □ðrstmade, though one was added afterwards."

his success he walked down to the village inn, and there, in the presence of the elite of the place, proceeded to explain with accuracy his most recent idea, by the simple expedient of dipping his □ðngerinhismugof beer; and tracing with this medium on the counter an outline of the invention before all beholders. or beer-holders. Amongst the company was a smart gentleman from London, named James Pickard, who, recognising the importance and value of the invention, immediately returned thereto, and □ðledthepatentbefore poor Watt had a chance to do so. This same person actually sued Watt for infringement and Royalty on what was really Watt's invention. However Watt immediately designed the sun and planet motion (geared facile movement) and thus evaded this imposition. The foregoing, however apparently irrelevant to my subject, is in reality most pertinent, as the crank and piston are the common foundation of nearly all motors. However, to continue to relate these almost forgotten incidents in connection with the subject would be to risk running into many volumes, so I will proceed at once to deal with the petrol motor, the advent of which heralded the □ðrsttangibleprogressin our movement. In 1885, Herr Otto. Daimler made his now famous motor-bicycle, with which most of us are familiar. The object of this construction was not to supply a practical vehicle so much as to provide a means of obtaining reliable data for the construction of other carriages. This machine (Fig 4) of Daimler had a most important eī ect, however, as De Dion, a little subsequent to this period, had experimented with steam with such disappointing results that he abandoned hopes of success but □ðnallyin1895,or thereabouts, he practically took Daimler's engine en masse (see Fig 3), and attached it to the back of a tricycle. I append a drawing of Daimler's early engine. The original drawing appears in a most valuable work on motors, Petroleum and Benzine Motoren, by G Lieck□ðeld, Munich, 1894, unfortunately published only in the German language. On reference to the drawing of Daimler's engine, it will be seen that great resemblance between it and a sectional drawing of De Dion's motor, even down to the valve arrangements and the enclosed □ðywheels (afterwards abandoned by Daimler), the only diīerence being that De Dion's engine was entirely air cooled. How ever, this was a huge step in advance, for in the Paris Toulouse races in 1897, and many others, the tricycles easily beat the cars of that period. De Dion also constructed a motor bicycle about this time. He placed his tricycle engine just behind the bottom bracket, and drove from engine to back wheel by a



L-R: "Fig VII: The Werner 1897—A, Inlet Valve; B, Cylinder; C, Tube Ignition; DD, Outside Fly Wheels; E, Exhaust; F, Crank Chamber; G, Engine Pulley; H, Front Wheel Pulley. Fig VIII: Hiram Maxim's motor cycle of 1899—A, Frame and Storage Tank Design; B, Cylinder; C, Connecting Rod; D, Crank on Back Axle; E, Footrests."

train of pinions. One of these machines I know for certain came to England, and I believe that Mr FW Baily, Hon Secretary of the English Motor Car Club, had some amusement with it—principally in railway trains. Contemporary with De Dion's invention was the Hildebrand-Wolfmuller bicycle (Fig. 5). This came into being in 1895. One in the hands of Mr New was brought to England in 1896, and did some time tests and raced against a well-known cyclist on the CP [Crystal Palace] track. This machine achieved a speed of some 27 miles an hour on level ground, but its great faults were its slipping propensities and its lack of ability to climb hills. It came to grief on the track, owing, I believe, to the locking of the steering head, which caused it to charge the railings through which it passed in great style It afterwards appeared at the great opening motor car run to Brighton in November, 1896, but it did not cover much of the distance. I made its direct acquaintance in 1897, while on a visit to the Continent. Our intimacy was not of long duration. Being placed carefully in the saddle, and having got the control by means of the throttle and mixture, I went oī in grand form at about 20 miles an hour. I felt very imposing indeed but suddenly became aware that there was a crossing some ten yards in front, and a large railway van just turning the corner. There was little time for re□ðection. In a second I realised that I could not get through, and in less time than it takes to relate pictured myself under the wheels of that van. My impulse was to swing the front wheel at right angles to the frame with the result that the machine and I came down at once—about four feet from the van—with a crash that resembled the discharge of a cartload of □ðre-irons. As I lay prostrate I saw my friend rushing up the road, swinging. his arms about wildly and shouting 'Put out the lamps! Put out the lamps!' As the machine was □ðtted with the tube ignition, the danger of the petrol □ðring can be understood. However, nothing happened in the way of an illumination, and I considered that I had got oī cheaply with a cut knee and damaged hand. These I immediately dressed with petrol—a useful tip in such cases. The machine was absolutely uninjured. Apropos of the Wolfmuller bicycle, it is well to mention that this was perhaps the □ðrst practical motor-bicycle. The engine was water-cooled. The water reservoir took the form of a mudguard for the back wheel, the tank and carburetter (surface type) being placed on the fore part of the frame, and the foot plates in the place usually occupied by the crank bracket. Pedal-gear there was none. The gear for valves was actuated by a small ball-bearing eccentric placed on the back axle. Large India rubber straps were attached to the big end of the connecting rod and cylinder to assist in overcoming the compression. As the outward stroke of the piston extended these, they, in returning,

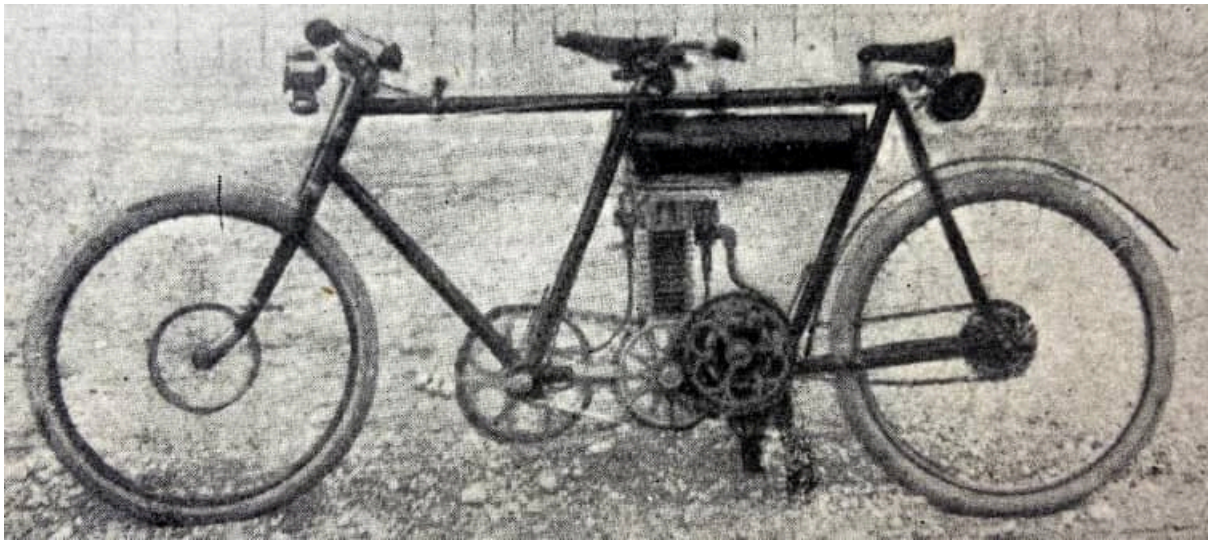


Fig IX: "The Bluhm tandem 1897".

on the inward stroke exerted considerable force. A marked peculiarity of this machine was a funny tapping sound made by the carburetter. This was due to the two little non-return valves which served as air inlets. I have often wondered that this small feature has not been copied, for anybody who has placed his hand to the air intake of a carburetter when the engine is running will have felt the force of the 'blow back', and will be able to appreciate the economy which such an arrangement, if eïicient, will bring about. Wolfmuller also constructed a tandem with four cylinders, arranged almost exactly as in the Holden engine, but it was not a success, chie□ðy owing to ignition troubles. In fact, for the □ðrst two years of its existence, the Wolfmuller bade fair to be a failure owing to this defect. I have a relic of the tandem in the shape of two of its cylinder covers □ðtted with two separate insulated plugs in each head, their points converging to parking distance. This machine was □ðrst □ðtted with the electrical ignition, but their system being faulty, lamps and tubes were substituted. These gave endless trouble, blowing out, going out, □ðaring, irregularly □ðring, etc, until, in 1895, I believe, Dr Ganz, of Frankfurt, brought out his improved pressure-fed burner. In 1897, Dr Ganz employed an engineer named Baur to ride his Wolfmuller so □ðtted in the Paris-Dieppe race (the □ðrst Gordon-Bennett). He duly competed, and would, in my opinion, have undoubtedly won this race, for the road suited the now vastly improved machine admirably, but unfortunately by an oversight Baur had forgotten to close the drain tap of the water tank before starting, and only became aware that something was radically wrong when his engine was nearly red hot. Not being able to speak a word of French, he had much trouble in explaining his wants to the peasants at the auberge at which he stopped in the anticipation of procuring the necessary water. At length he obtained what he required and resumed his

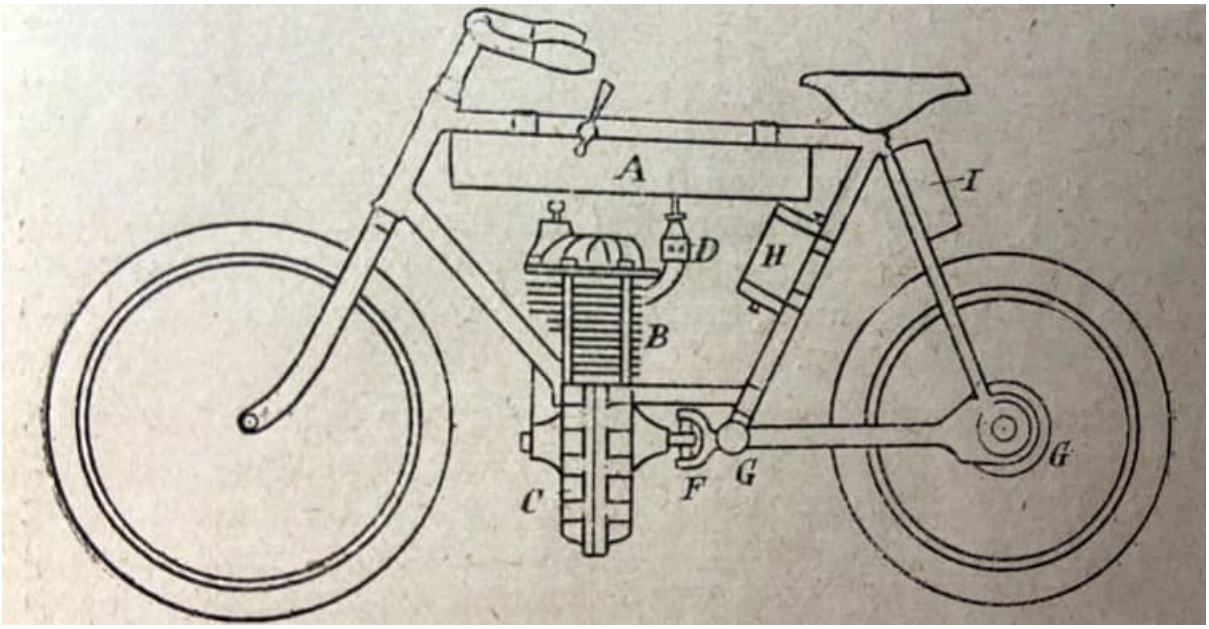


Fig X: "Machine of French manufacture with Bevel gear drive, Ghent, '98—A, Tank for Petrol; B, Cylinder (De Dion); C, Crank case (seen end on); D, Spray Carburetter; F, Cardan or Universal Joint; GG, Bevel Gear and Shaft; H, Coil; I, Battery."

journey. Presently ominous sounds from the engine betokened more trouble. Dismounting he found it once more almost red hot, and the water tank again empty. At this juncture he thought of looking at the drain cock, which, of course, he found wide open. A horse pond being handy, he □ölled up and started again, and all seemed right. But not for long. His engine began to lose power in a remarkable manner, and upon examining his lubricators he found them empty. He had used the lubricant too lavishly on the cylinders before □önding out the true cause of their

over-heated condition. Managing to obtain some salad oil, he □ðlledupwithit and essayed to continue. As one may imagine, salad oil did not prove to be a very good lubricating medium, and owing to continual back □ðringBaureventuallyabandoned the contest at Amiens. Another machine (see Fig 6), I might say an attempt to rival the Wolfmuller, appeared during 1896, made by Heigel-Weguelin, also a Munich □ðrm. Thismachine was □ðttedwithone large air-cooled cylinder, which occupied the position of the down tube from the head to the bracket, and drove a bevel gear therein which was continued to the back hub. The cylinder was 4in bore and with a 4in stroke, and was furnished with magneto-dynamic ignition. This cylinder, which I have still, is another interesting relic. This last-mentioned machine never achieved great notoriety, although one was to be seen about the streets of London a year or two ago. In common with the Wolfmuller machine it was a bad hill climber. The Pennington bicycle appeared at the CP cycle show in 1898. This was a somewhat similar arrangement to the Wolfmuller, only the cylinders were horizontal and reversed in their position, the heads pointing back and driving forward on to a pair of direct cranks. There were no ribs or other cooling device for these cylinders, which were fashioned from steel tube. Electrical ignition was □ðtted, but I never heard of this machine being at all practically ridden, it being one of those attempts to take an ordinary safety and gum an engine to it. However, it did have pedals, and was thus a true motor bicycle. At the same show I saw a small steam engine and boiler placed on a safety, the boiler in front of the handle-bar on a bracket, and a long-stroke single cylinder driving directly on to pedal gear. It was too small to be practical, although the intention was good. Major Holden's bicycle was also shown in an incomplete state on the Crypto stand at this same exhibition. And now, I think, we may close the description of .these incomplete evolutions of the past, and come to the era of the really practical development of the modern motor bicycle. In mentioning the advent of the practical motor bicycle in the foregoing, it is well to state that actually the two periods, as we may call them, overlap considerably. The early eīorts were, almost without exception, aimed at direct driving with comparatively slow speed engines. This as a rule involves a heavier machine in proportion to power given oī; in the development of steam engines exactly the same transition took place. For example, compare the dimensions of engine of a 30-knot torpedo boat destroyer of 5,000hp with 2,000 or 3,000hp Atlantic liners of 40 years ago. It will be found that the latter weighed about as much as the former and occupied corresponding space—the diīerence laying in this: Forty years ago men were content with engines running 30 to 60 revolutions per minute, and used 50-lb pressure; to-day 300 to 600 revolutions and 200lb pressure are the rule. Although there are wide diīerences between steam and petrol engines, yet this rule to some degree holds good that the power of an engine to a large extent depends on the number of impulses given to a piston in a given time; thus in petrol engines, take a machine having 4 cylinders of 3-inch bore and stroke running at 500 revolutions per minute—it will give oī approximately the same power as an engine having one cylinder of same dimensions running at 2,000 revolutions per minute; the number of impulses in both cases per minute are the same. Of course, the higher speed engine probably does not get the full charge of mixture each turn and has more resistance to the exhaust, and its power is correspondingly slightly less, but as it is, perhaps, about ⅓ to ½ the weight, its advantages to self-propelled vehicles are at once obvious and its chances of going wrong are also diminished; also the internal friction of moving parts is less. These theories have been more than borne out in actual practice, for it was found that the high-speed engine was not only a better hill climber, but that its range of control was also far larger; there are practical reasons for that which we shall, perhaps, enter into at a later date. Daimler, curiously enough, showed his grasp of the practical side of the question in 1885, for his bicycle engine was of the high-speed, geared-down, type. As I have shown, up to 1898 men still tried to perfect direct driving, and indeed, in the Holden, it is continued to the present

day. The latter is certainly a masterpiece of design for this type, and may prove very successful, but I fear its weight is much against it, together with one or two essential points which my experience has shown me a motor bicycle should have. The □ðrst practical motor bicycles were without doubt the inventions, one in Paris of Werner Freres, the other in Munich by Alexander Bluhm; both machines were produced almost at exactly the same date during 1897. I illustrate the □ðrst machine as made by Werners, which diīered from the later type in having outside □ðy-wheels, and outside bearing for front wheel. The driving pulley also placed outside the forks, was really a hollow rim and small wheel, built on a sort of secondary hub as a prolongation of the front wheel spindle. A reference to the drawing will make this clear. It was also □ðtted with tube and lamp ignition as were all the early De Dion machines. The □ðrst Bluhm bicycle was a tandem (see drawing), and was remarkably eīective, as it was a fair hill climber and attained a speed on the track of over 45 kilometres an hour (about 30 miles). It was chain driven, weighed about 150lb, and had a method of running the engine free, and curiously enough, in view of later developments, ignited its charge by means of an automatic catyaplatinum system, which was started by means of an electric current. Only the front rider had pedals, and these were mainly for starting the engine. The back passenger had foot rests only. The engine had a bore of 70mm with a stroke of 70mm, and was geared to back wheel at 5 to 1. It was designed to run at a speed of 1,200 revolutions per minute. This engine drove a small sprocket wheel, geared to a larger one by a short chain; on the axle of large sprocket was a chain wheel which transmitted the drive to back wheel. This axle also carried the chain wheel (which was □ðtted with a direct clutch) by which the power for starting engine was conveyed from the front rider's pedals. A reference to the drawing should make this quite clear. This motor bicycle is still extant, and was running up to a short time ago, but I have not much news of it lately. It survived most of the early Werners and should be of great interest to latter day motor bicycle designers who, perhaps, fancy they have done something new in designing a machine chain driven and started with overrunning clutches. The next machine which was designed by Bluhm has a great interest for me, as I have ridden it the greater part of the last three years, and is undoubtedly one of the oldest practical motor bicycles running, but a faulty casting (aluminium crank case) has developed defects which necessitate its retirement to some museum. This machine diīers from the tandem in some important details. The engine (size, 65mm bore, 70mm stroke), instead of being connected by a chain to a large sprocket wheel, a toothed pinion took the place of the latter, and the engine axle had a small pinion in mesh with this, the axle in the large pinion was hollow and through it passed, running on ball bearings, the pedal axle; this, on the opposite side to pinion, had a sprocket wheel in connection by chain with back hub, and free wheel, the pedal axle could be connected or disconnected with the large pinion axle at will in order to start engine, or to pedal the machine as a simple bicycle. The large toothed pinion had also a chain wheel on it driving a chain on the other side of back hub, also □ðtted with free wheel clutch, this latter was found absolutely necessary, to prevent chain breaking if engine back-□ðred. I show a diagram of engine and its arrangements; by-the-bye, it is well to mention this machine had electric ignition, the contact breaker of which was □ðtted on large pinion axle. I have derived

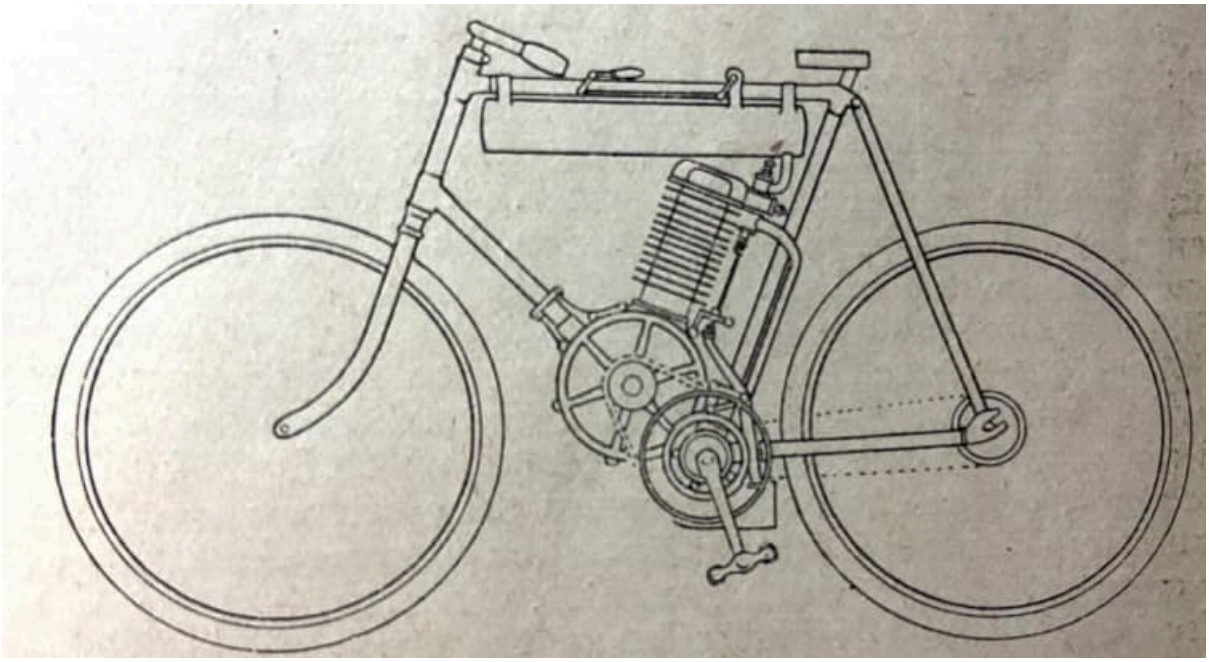


Fig XI: "Bluhm motor bicycle (second pattern) of '98."

a great deal of pleasure from this machine and it was very reliable, as I had □ðtteditwith a 2-gallon petrol tank and large lubricating oil reservoir, I could take fairly long journeys, my longest day's ride was 140 miles, starting 11am and □ðnishing7tothe evening, with two stops for personal refreshment. Themachine could always averageabout 25 an hour over give-and-take roads, and owing to the pedalling gearbeing 84, I could assist the averageof my mount up hill very materially and found it most exhilaratingto do so. I never had an actual side-slip with this motor, but I came oī once owing to trying to take a slippery corner at top speed. Thewhole concern simply slithered about 10 yards sideways and then lay down very suddenly indeed, so to speak. I rode home some 20 miles, later, which shows there wasn't much harm done. On another occasion I put on the □ðrstbraketoosuddenly on a very wet road, downhill; the front wheel simply locked, skidded, and once more 'took the □ðoorinstyle'.Result: broken pedal and a lost temper. Howeverthe things and opinions I expressedto myself about myself on that occasion have so impressed me that I have not repeated the performance since. I consider that both these falls really resulted from the weight of machine (some 140lb), and the large-diameter smooth tyres I used. I then □ðxedoatbandswith most satisfactory results. It may be of general interest for motor cyclists to learn that Mons Bluhm has lately designed a new type of machine, somewhat on the old lines but much simpli□ðedandlightened. This machine will be exhibited in the Automobile Club show at the Agricultural Hall in April-May. Although I have full particulars at hand, I am most unfortunately precluded from giving them as foreign patents are pending. The above machine was also made as a tricycle with no alteration to engine at all, simply a back bridge and balance gear in place of hub. I have ridden it a good deal in this form and it had some distinct advantages over the De Dion type. I may mention the chain drive as □ðttedwasperfectly satisfactory, a ¼inch racing chain lasted for two years, ie from 1898 to 1900, since that date two other chains have been used, and machine is still as □ðtasnew. Thesame sparking plug has been in use the whole time and is as eīicient as ever. I am ready to satisfy anybody who may require further information on above points, but I think they nearly constitute a record. And once more to retrace our steps a little. In the autumn. of '98 I had a good deal of experience of the early Werner. I was staying near Ostend at that time, and there is a lovely kind of Parade (commonly called 'La Digue'), about 3 miles long, and after that continuing on a sort of brick

footpath to Middle-kerke, about 8 miles in all. It made a capital practice ground for my early experiments, in which I gained a lot of information about the eīect of a strong sea breeze on tube and lamp ignition. The great advantage of this machine was that, when I was tired of playing at 'motors' with it, I could take the belt oī and it wasn't much worse than an ordinary bicycle. Under favourable conditions one could get nearly 20 miles an hour out of it. The chief troubles were due to the carburetter, and the very exposed position of the ignition lamp. Regarded as the foundation of a large class or division of motor bicycle, it is full of interest, for the only diīerence between the frame and ordinary safety lay in the front forks, and I regard it as the □ðrst practical attempt to convert any usual form of bicycle into a motor propelled machine; for there are, to my mind, three broad classes or divisions between modern motor bicycles, ie (1) Motors made or □ðtted to any ordinary pattern frame; (2) A frame built to take in an ordinary pattern motor as De Dion; (3) A machine in which both frame and motor are specially designed each to suit the other's essential requirements. The latter is undoubtedly what the 1902 pattern has come to, which shows that attempts to make a motor in order to convert any bicycle into a motor driven one are bound to be superseded by the more perfect combination designed for the altered conditions of traction which attain when a motor does the principal part of the propelling. A machine belonging to the second category appeared in '99. known as the Shaw, made by Shaw & Sons of Crawley. It had

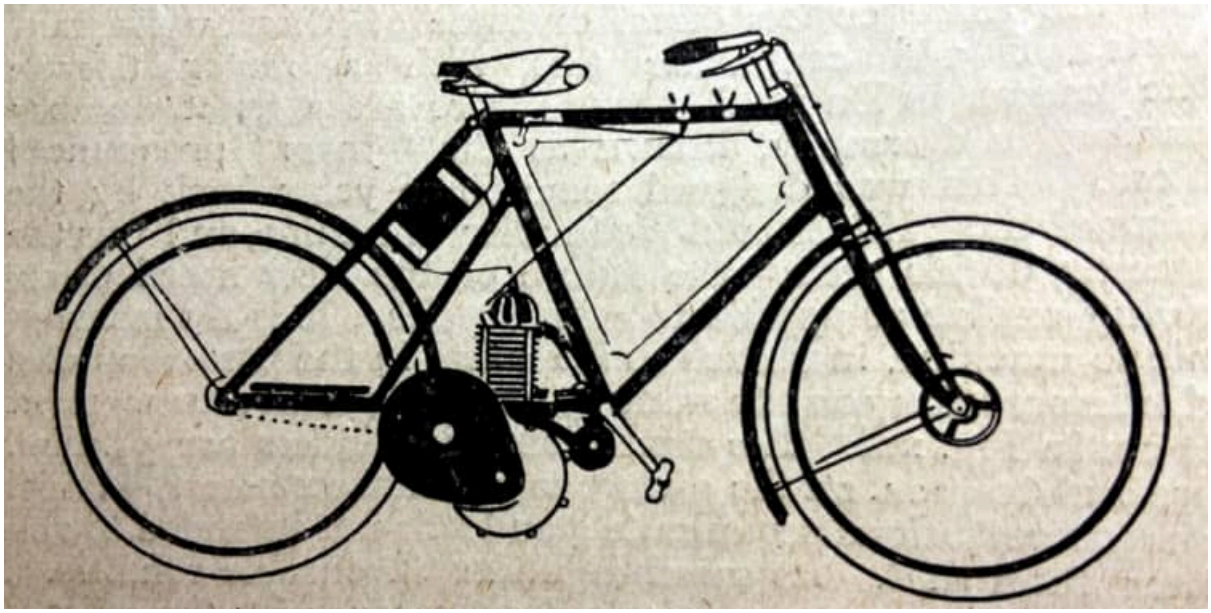


Fig XII: "The Shaw appeared in '99."

an ordinary 2¼ or 2¾hp De Dion motor built in just behind the crank bracket; when it □ðrst appeared it had no pedals and was chain driven, absolutely rigidly, and was started by running the machine along till the engine chose to chip in. There was evidently a good deal in the machine that was commendable, as I have an acquaintance who has always. sworn by it, and has ridden one consistently for some two years. The great drawback to the early type was undoubtedly the liability of the chain to break (which it used to do pretty often). This was, no doubt, occasioned by the back pinion being a □ðxed, instead of a free wheel, as in the Bluhm; but, of course, if Shaw had used a free wheel he would have had to arrange for some other method of starting the engine than the method named. But the diīiculty has been apparently avoided by substituting a belt instead of a chain and attaching pedalling gear on other side. The little experience I had of this machine showed it to be very fast and powerful 'climber'. Another machine belonging to type 2 will be shown. at Fig X. It was of French origin and I came across my

□ðrstexampleofit at Easter '99, in the town of Ghent, Belgium a 2¼ De Dion motor was placed transverselyjust in front of bottom bracket, which had no pedals but only rests for the-feet. The engine shaft was continued by a long shaft having a universal joint at the engine end and a bevel gear at the back hub. This machine ran fairly well however, but during the short trip I made on it, the engine knocked oī work three times in 100 yards, owing to defective carburetter. Anyone who knows the streets of Ghent and Rue Neuf, St Pierre, where this little episode took place, can easily place credence on that statement. I do not know if the machine is still made, indeed I forget its very name, but it seemed to me an attempt to carry light voiturette practice into bicycle work, but it is of interest, as it is the second instance we come to in which a bevel gear for driving is employed. Heigel Weguelin being the □ðrst. From '99 to 1900 the movement made a very sudden jump and I fancy that no less than 20 new designs appeared during this period, the best known of which being perhaps the Minerva. It would be tedious to go into details of most of these as descriptions have appeared at one time and another during the past 18 months. The 'Automotor Journal' came out with a very complete list with descriptions and diagrams about a year ago. Generally speaking it struck me that those which were original were absurd for their purpose and those that weren't were copies or variations of the Minerva and Werner types. Sir Hiram Maxim, of □ðying machine and quick □ðring gun fame, had a little □ðutteratmotor cycle design in latter part of '99; in connection with which he took out some patents, in which he states his aim was to attain simplicity of construction and working. The machine was not exactly a bicycle or a tricycle, inasmuch as it had two driving wheels at the rear placed about one foot apart and keyed rigidly on a cranked axle. This latter was driven by a very large two-stroke petrol motor; a two-stroke motor is more or less an idiomatic term for an internal combustion engine obtaining an impulse or explosion for each revolution. I never saw this machine, but it appeared to me a most unpractical design so far as one could judge from the speci□ðcation and patent drawing; it had no pedals, as may be surmised, and the frame consisted of two huge tubes extending from head to back axle, these tubes formed petrol tanks and beneath was placed the above described cylinder; this machine brings to my mind that late in the eighties or early nineties Messrs. Roots and Venables made a tricycle having a small two-stroke engine connected on to back axle by bevel gear; it was not a direct process, owing to its tendency to back □ðre or ignite the incoming charge of mixture, due to some incandescent portions of previous exhaust stroke remaining in the cylinder, but I believe it enabled that □ðrm to obtain much useful data, and during its experimental periods it was often to be seen endeavouring to urge its career down High Holborn, long before the motor car Emancipation Act of 1896 was dreamt of. Having now given a brief resume of some little known eīorts of the past, let us turn our attention to what has been the more or less direct outcome of these well-meant eīorts. I will commence this with a motor tricycle little known in England, though there are a great number running in Germany, known as the 'Jooss' pronounced 'Yoss'. This was designed some three years back by the maker of the Hildebrand-Wolfmuller machine, and was the outcome of his seeing the failure of the slow-speed direct driving engine as applied to motor cycles. It is a somewhat unique machine, inasmuch as it rejoices in the possession of two cylinders working on one crank by a rocking shaft arrangement shown in Fig XIII. The dimensions of cylinders are 55mm bore and 60mm stroke giving, so the makers assert, ⅝bhp at 1,500 revolutions per minute; and it is not intended to run faster than that. Its speed is under favourable conditions, nearly 30 miles an hour (2min 6sec for the mile is the best I have done, timed), and it takes a grade of 1 in 12 very well indeed. The single □ðy-wheel is outside on the right and of 11 inches diameter, and the driving pulley on the left, the transmission is by an endless plaited square cord and this wears extremely well. I have had one belt running without change for the last year, and it seems good for a bit more yet; a jockey pulley □ðtted with a ratchet

lever is situated so that one can tighten the belt instantaneously. I am inclined to approve of this arrangement, as I □ðndthatonthe level the machine drives best with the belt just taut; tighter than that slows the machine; up a hill, however, if the engine starts slipping, this can be at once remedied, I have found this machine the most convenient of any I have ridden in traīic as if a block occurs I at once slack oī the belt, letting the engine run free; and starting again like a car, by just giving a touch to the lever. This machine has simple magneto-electric ignition, there is no spark advance or retard, control of speed being obtained by varying the mixture and by cutting out. A simple exhaust valve lifter is □ðtted, and the machine is about the most 'fool proof' one I know, and I fancy as the movement stands at present, that this is a most essential quali□ðcation. I have never had a side-slip on this machine at all, its weight is 80lb. Birch & Perks' patent bicycle, as made by the Singer Cycle Co, is another endeavour to obtain extreme simplicity although I cannot honestly say that I think the interior of the wheel is the place for a motor. But of course time will enlighten us more on this point. The engine is the best □ðnished and made that I have seen, which might be expected from the standing and reputation of the above makers. Of the Minerva type of machine, I think this may prove to be the nucleus, as it were, of an immense development, but as it stands and is generally made it is rather heavy and, to my mind, underpowered. I may mention that I have certain information that in France machines are already being made with cylinders 75mm by 75mm weighing from 60 to 80lb. This, my experiences teach me, is what will be more sought after shortly. No matter how good an engine is, then are times when it will not give oī its best, perhaps bad petrol, a weak battery, unfavourable climatic conditions, &c, and I do not think 50% too large a margin of power to allow for these eventualities, as one can double the power of the engine by adding perhaps 10lb to the weight of it. I, for one, approve most strongly of any attempt to make a serviceable roadster weighing not more than 90lb, with the greatest possible engine power consistent with the proper construction and proportions of the rest of the machine for speed. The gearing of engine can be altered to suit the part of the country the machine is required for, and hill-climbing power is always there without the expense and trouble of two speed gears. It is better to increase the power of the engine than to add any further mechanism to it. Of course these modern machines are far too familiar to most of us to need any detailed description here; but there are one or two I should like to mention—for instance, the Mitchell, an American make. This machine has an

The Mitchell was built by the Wisconsin Wheelworks Company.

engine 75mm by 75mm, and should be capable of great things, but from a few days' experience of it the following points struck me: the □ðywheelsweretoolight, and if I owned one I should add a 9in 10lb extra one to the outside, with pulley attached. Thecarburetter I do not approve of, though it may in some be unnecessarily heavy; also the silencer. The electrical arrangements could easily, in my opinion, be bettered by using accumulators instead of dry batteries and a more eīicient coil, the make-and-breakcontact is ingenious, but, as in most of this type, the 'break' is too slow for a good spark, especially at starting, when it is most wanted. One conclusion forced itself on my mind when riding this machine, which is this, that as the power of the engine is increased the eīiciency of a belt to transmit is decreased, and as the engine power undoubtedly will be augmented very much presently, makers will, I think, be wise in studying the perfection of the chain drive. Thesechanges took place in cars, as also the transposing of □ðywheelfrominsidea case to the outside of it, and we shall see the same in bicycles, I feel sure. A machine which took my fancy greatly at the late Stanley show was the Petrocyclette

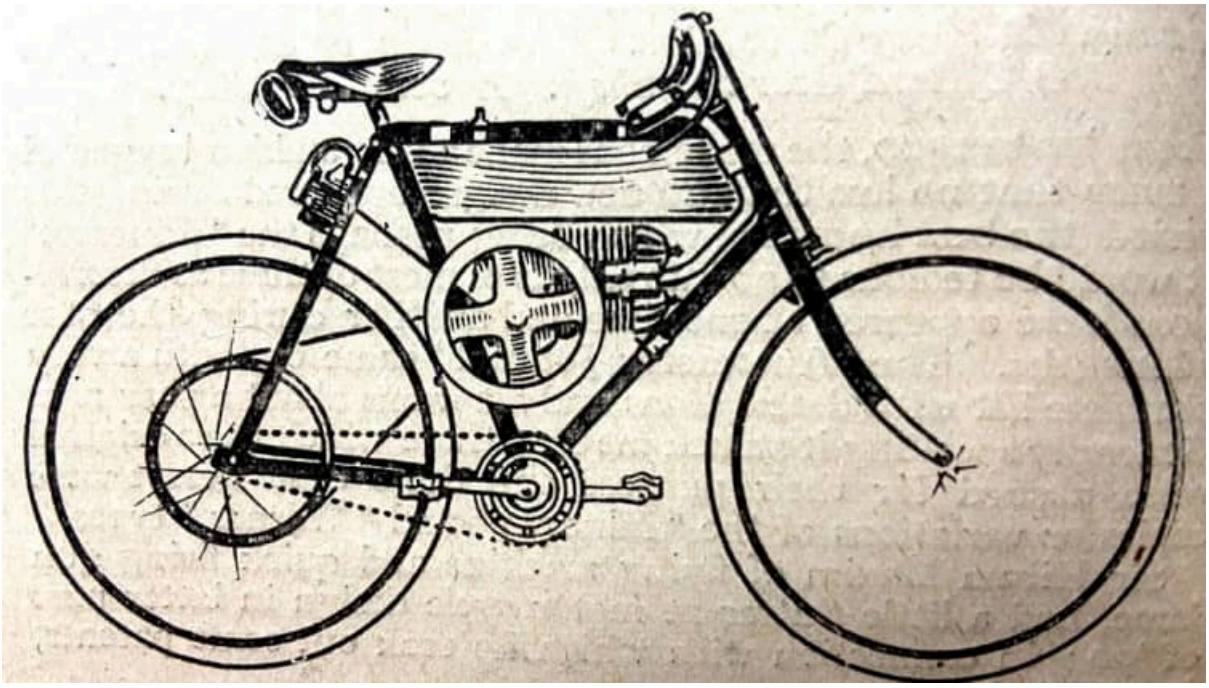
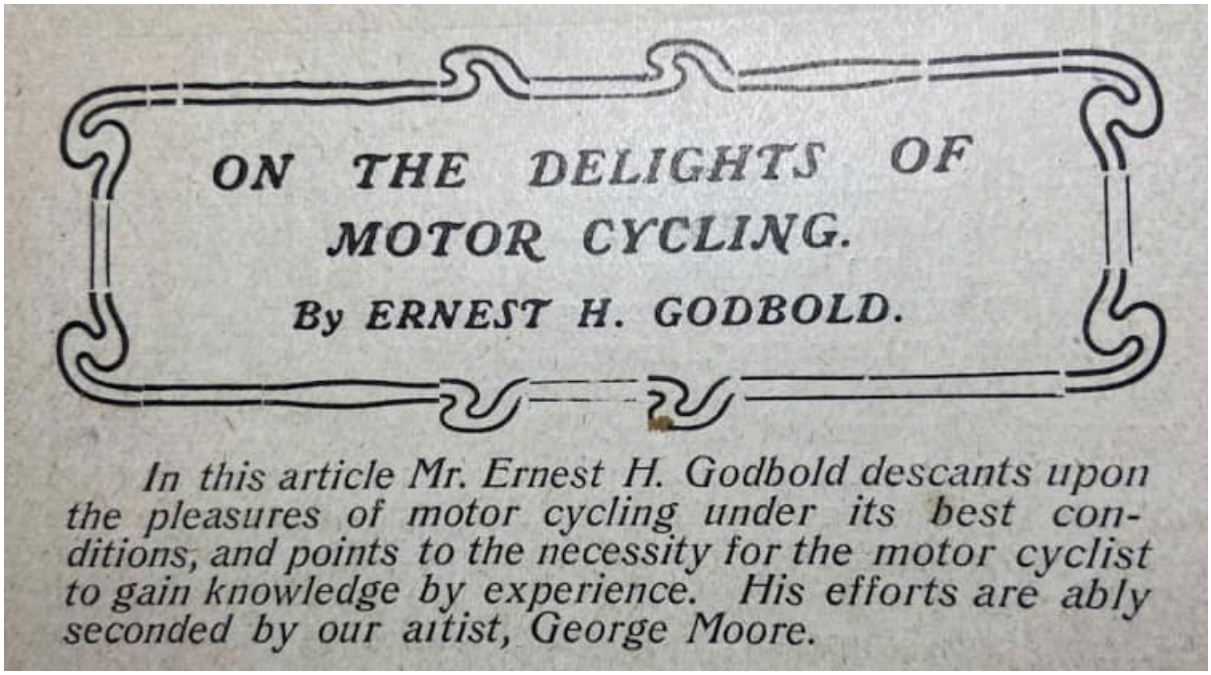


Fig XIII: The Jooss, designed in '98-99."

shown by Mr Marriott, the old long-distance rider, now residing at St Albans. It was chain driven and had a friction clutch like a car, forming part of the large single exterior □ðywheel. This clutch was actuated by a lever on the top tube. The machine was most beautifully made and □ðnished, and Mr Marriott spoke of its reliability and convenience in the highest terms; and as the machine has many points in common with one I had designed just previously to the show, embodying what I thought was required in the machine of the future, it may be imagined that I could heartily agree with him in his commendations. My machine will not be □ðnished for sometime yet. The only points that struck, me were that the engine was somewhat small, and its cooling arrangement rather 'faddy', in view of the good results attained in far larger engines using simply broad thin 'Ailettes' on the cylinder and cover. There were many machines at the same show having chain driving and an overrunning clutch driven by the pedals to start the engine, but in view of a machine I mentioned as being made in '97 I do not think this is the ideal transmission we are looking for and must have. I will not now indulge in further criticism of modern machines all well known and on their trial, but the following points my study of the question seems to assure me are essential: 1st—A method of putting the engine in and out of gear at will. 2nd—Means of starting and allowing the engine to run whilst machine is at rest. 3rd—Arrangements so that the machine can at once be used if desired; as to such things as carburetters, □ðring and electrical devices, valves, &c, the best will soon sort themselves out when a de□ðnite type of machine is more common, and in these things, as the French say, 'Chacun a son gout'. I think this form of sport has an immense future before it, as large in its way as the car part of the movement, if not larger. The control over time and space and the exhilarating sense of power, so dear to the heart of the sportsman, have a fascination for myself that words cannot express, and I feel sure it is the same with all those who try it, and who have the patience to learn con□ðdence and control of their engine. I think time will show that the car for old age and comfort and the skeleton single-track machine for speed and youth, will undoubtedly be the two divisions of automobilism. And now that we have really and truly a paper and journal of out own for the latter branch, developments will not be slow in forthcoming. There is no doubt the bicycle or skeleton racers will outstrip the fastest car in point of speed, if men can be found to ride them,

but having indicated a future of dazzling proportion for our sport I will leave the imagination of the reader to carry him into it."



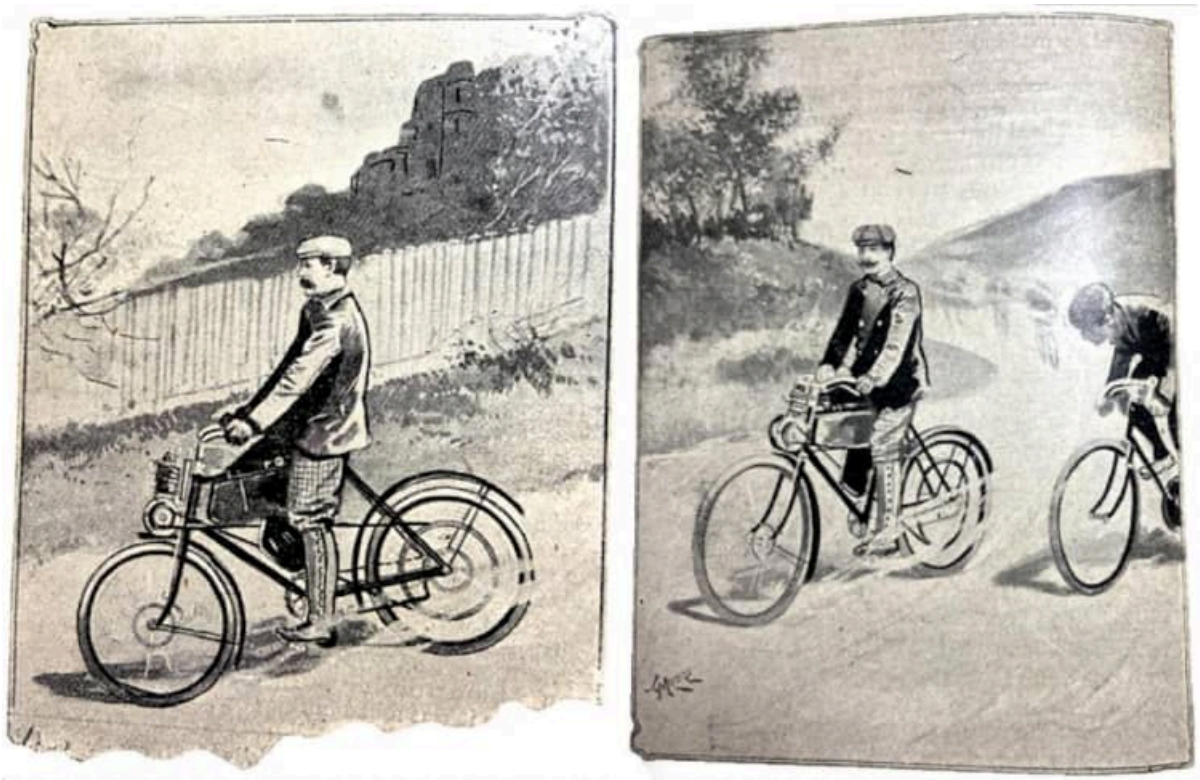
ON THE DELIGHTS OF MOTOR CYCLING.

By ERNEST H. GODBOLD.

In this article Mr. Ernest H. Godbold descants upon the pleasures of motor cycling under its best conditions, and points to the necessity for the motor cyclist to gain knowledge by experience. His efforts are ably seconded by our artist, George Moore.

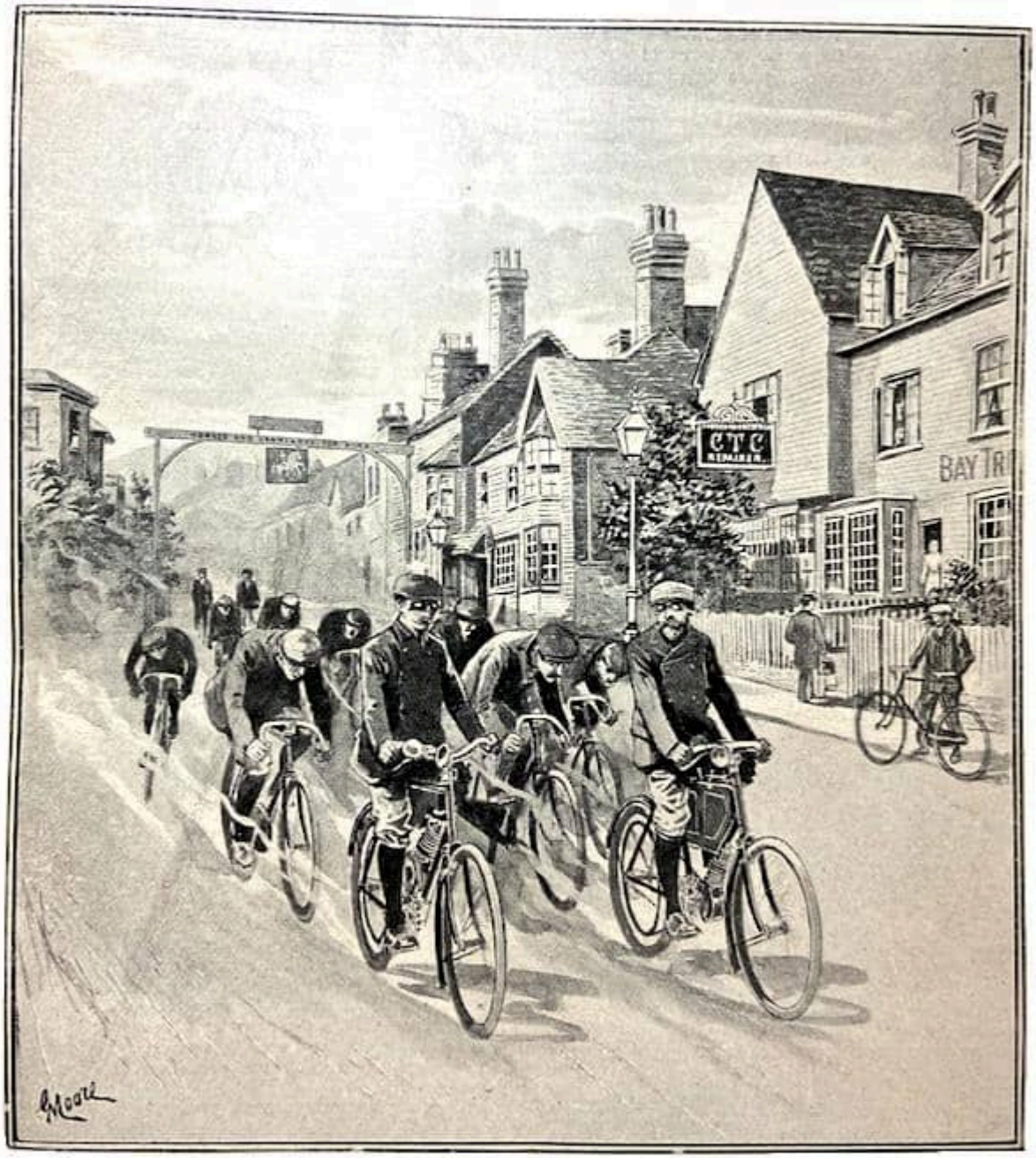
"CANDIDLY SPEAKING, MOTOR CYCLING is the best kind of pastime I have struck yet. And I think at one time or another I have tried them all from Rugby football down to parlour tennis. It used to be claimed for golf that it was the ideal exercise for body and brain—but that was before motor cycling had been invented or become possible. To my mind there is nothing in the world to be compared with motor cycling under favourable conditions and no sense of enjoyment so keen as that to be obtained from travelling along a well surfaced road at anything between ten and twenty miles an hour, bathing in the fresh air and sunshine, with a proper appreciation of surrounding scenery and □ðnding occupation all the time for one's mind in the working of the motor, trying to get the best result from it under all conditions and learning by sound and almost by instinct the way in which it is working and the best method in which to handle it with that end in view. And then there is that spirit of competition which gives an added relish to our enjoyment; the gradual overtaking and eventual passing of others on the road, whether they be either drivers of horses or well developed and athletic young cyclists of the customary kind. Uphill and down the motor cyclist feels that black care has left his shoulders for ever, and the business worries of yesterday's workaday world have disappeared. Downhill he □ðies with exhaust valve open and current switched oī to cool the engine and prepare it for the next ascent; and this begun, he sets his legs to work, and with gentle pedalling assists it to the summit. At the end of the run neither his appetite nor his sense of satisfaction is any less keen than they were wont to be ten or twenty years ago after an hour and a half of exciting 'scrums' on the football □ðeld, a ten mile spin across country at hare and hounds, or a thirty mile ride—or scorch—on bicycles with bootlace tyres of the solid sort and a hard ding-dong at the □ðnish. Dusty he may be; he may have a sense of □ðies in his eyes and a taste of the same in his throat; but dust and □ðies are alike easily removed; and during the time in which he has been acquiring them, he has enjoyed every minute of his existence, and the cobwebs that during the week had gathered round his brain have all been blown away. He stables his machine with a feeling of pride, increased rather than diminished by the remarks of the on-lookers at its rarity and virtue, he eats his meal with a relish, and enjoys his subsequent pipe with even more than his

customary gusto as he suns himself under the cathedral wall, lies prone in a sunlit meadow or watches the river glide by under the arches of the bridge in the old town to which he has made his pilgrimage. And when shadows begin to lengthen he seeks once more his machine,



"Downhill he □ðieswithexhaustvalve open." (Right)"The gradual overtaking and eventual passing of others on the road."

carefully overlooks tyres, nuts, sparking and other vital parts, injects a drop or two of paraïin into the cylinder head and sets oī in cool of the eveningon his homeward way. Thereonthe engine working well in the keener air, his way will probably be even pleasanter than before; the setting sun be casting more mellow lights on trees and hills; the workers from the □ðelds,having □ðnishedtheirroundof toil, will be devoting the last few hours of the week to rendering their own gardens neat and trim, and will gazewith open-mouthed wonder and good humour at this new invention, the motor cycle. Of such are the delights of motor cycling under its best conditions and in its single form. Thesingle machine, whether bicycle or tricycle, is a sel□ðshinstrument; but the Quadricycle, at no great increase either in capital outlay or in cost of up-keep and motive power, permits the easy carrying of a partner to share with us our joys and sympathies and assist us when skies are unpropitious and breakdowns occur. For it is not always plain sailing; roads are not always good, and the sun does not always shine. Now and again the inevitable sometimes, unfortunately, happens, which may necessitate an hour or two's work by the road-side, during which we chafe under the cynical comments or kindly meant sympathy of those same rustics who so lately cheered us gaily as we sped along; the hour's work itself may be in vain, and we may be reduced to the ignoble position of having to call horse and cart to our aid to tow or carry ourselves and our unruly instrument to the nearest town or railway station; or may be recognising the fact that the only thing required to make it go is something we have not with us, we leave the machine to its fate in friendly hands and set oī homewards on foot or on a borrowed bicycle."

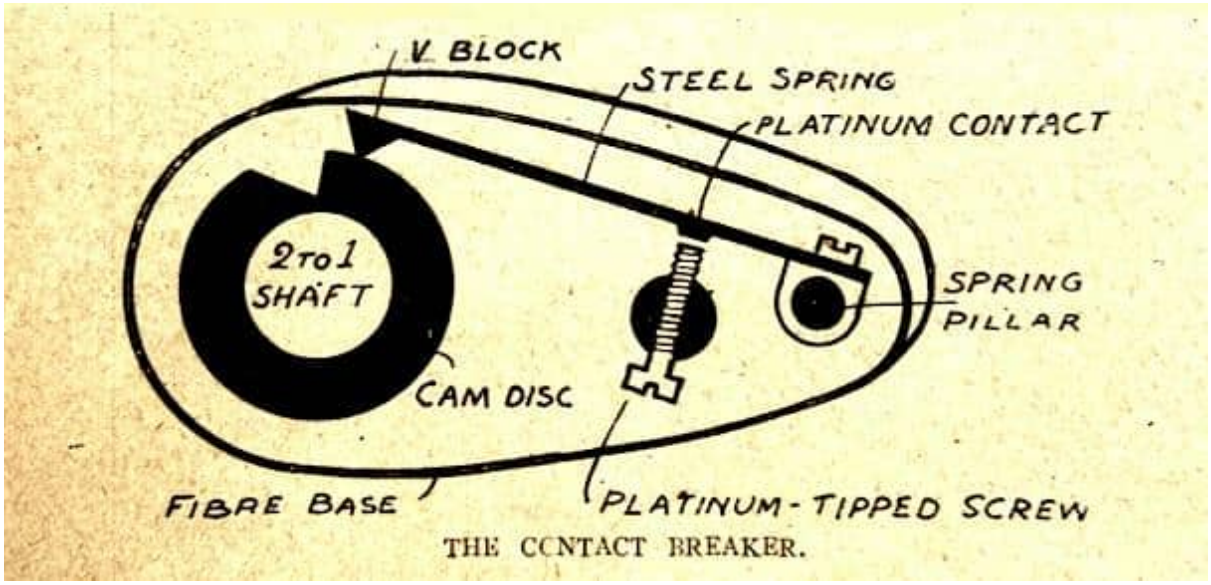


“Hanging on. In this picture our artist gives a vivid and prophetic illustration of a return run from Brighton. The Motor Cyclists are passing through Crawley and are being held for the time by a little group of Speed Cyclists.”

Many experienced riders will confess to occasional confusion when it comes to motor cycle electrics. In 1902 experienced riders were few and far between and converts from pushbikes faced a nigh-on vertical learning curve. Motor Cycling was ready and willing to enlighten them.

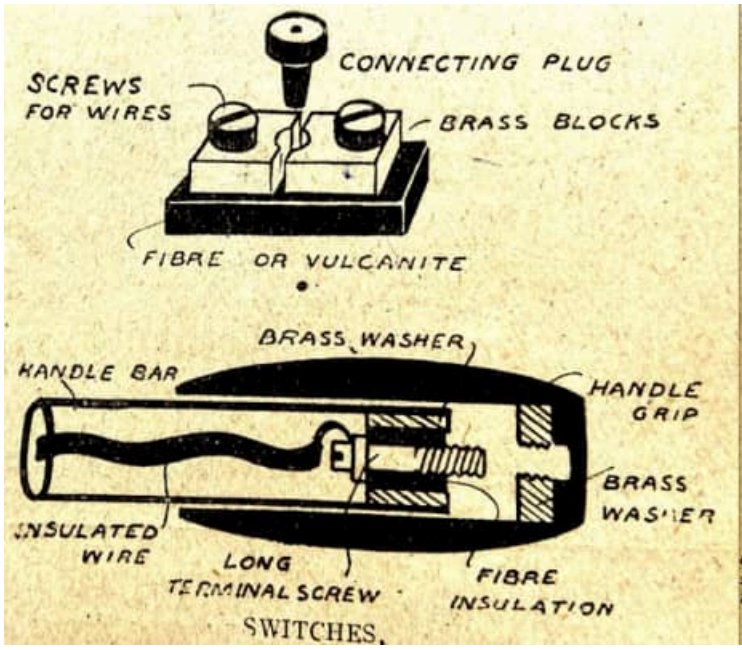
“MOST OF THE TROUBLE Sencountered in the running of a motor cycle may generally be traced to some defect in the electrical system adopted for □ðring the explosive mixture of gas and air in the motor cylinder. The early patterns of the motor bicycle, notably the Werner, were □ðtted with ‘tube’ ignition. This arrangement was very simple in principle, consisting brie□ðy of a platinum tube kept at a bright red heat by a small spirit blast lamp. This tube was □ðxed in a chamber attached to the cylinder of the motor, and an arrangement of slides or valves allowed the

explosive mixture to come in contact with the red hot tube at the right instant. This system was easily understood by the non-technical. rider and was found reliable and easily kept in order. Its great drawbacks however were (1) the liability of the naked □ðametocomein contact with the petrol by any means (say in case of a fall) and thus cause an explosion in the carburetter or tank ; (2) the limited range of speed and power obtainable. Both these defects are absent in the electrical

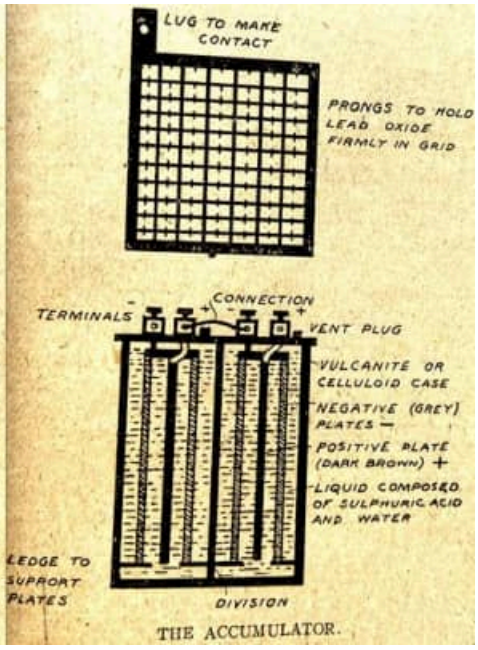


THE CONTACT BREAKER.

system of ignition now used, its safety and eīiciency indeed, being remarkable, but we are now using certain mysterious looking pieces of apparatus and their wire connections, the scienti□ðc principles of which the motor cycle novice has only the vaguestidea, consequently he is at a loss how to account for many of the diīiculties and is thereby put to expenseand inconvenience which could be avoided if he would learn at least the fundamental. principles of the electric ignition system. Theobject of these articles will be to put these principles before the reader in the simplest possible language,so that, with the aid of diagrams,practical hints and directions, he may able to keepthis most important part of the motor bicycle in good order. In this article will be described in detail the system used on motor bicycles of the two main types, viz, the Minerva and the Werner. In fact, we may say that 90% of motor bicycle makers are employing the coil and battery system, in distinction to the few who use the dynamo system. Thecomponent parts of the coil and battery system are: (1) The **battery** which supplies the electrical energy; (2) The **coil** or transformer which increases the the tension or pressure of the electrical energy; (3) The **contact breaker** or automatic switch which is worked by the.motor and sends impulses of electrical energythrough the coil; (4) The **sparkingplug** which allows the high-pressure electric impulse or current to produce a tiny spark or □ðameintheexplosive mixture and thus ignite it; (5) Themain **switch** on top by which the current is cut oī at will by the hand for stopping, and starting the motor; (6) Theinsulators or protected **wires** which conduct electrical energyto the desired positions; (7) The **'timing' lever** attached to the automatic switch or contact breaker,which, to a large extent, regulates the speed and power of the motor. Thebattery, sometimes termed the accumulator or storagecell, is totally diīerent in construction and principle to the 'dry'

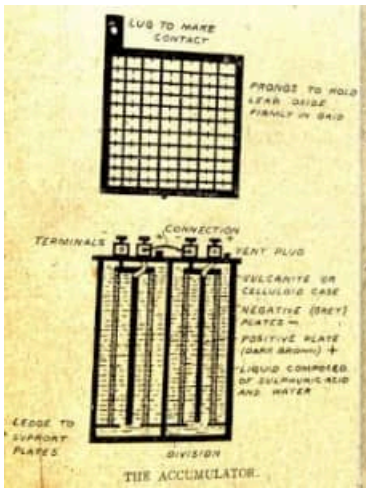


SWITCHES.

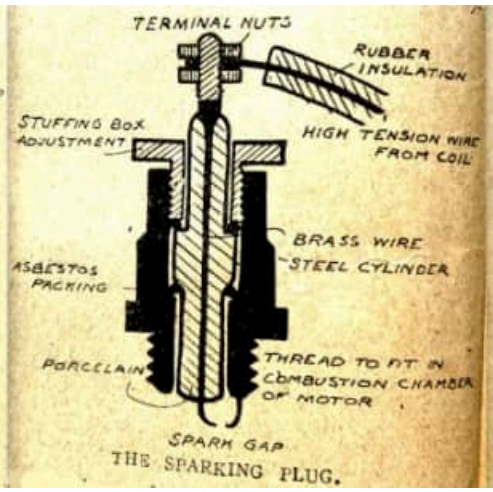


THE ACCUMULATOR.

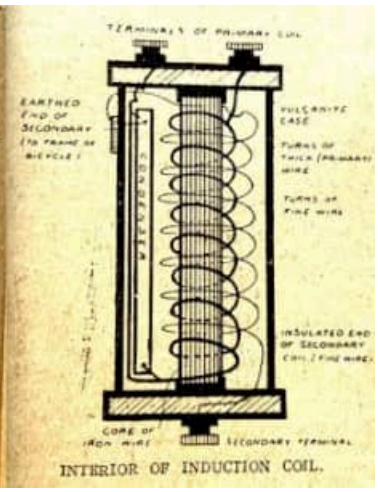
battery in use on some patterns of tricycles and cars. The general type of storage cell met with consists of a celluloid or vulcanite box, divided into two watertight compartments in each of which are □ötted 3 or 5 gridwork plates of lead. The spaces forming the grids are □ölled in with a paste containing oxide of lead (such a one, for instance, as ordinary red lead. The plates are immersed in a mixture consisting of sulphuric acid (oil of vitriol) and water of a certain strength or proportion. Now, when these plates are connected together in a certain way and a current of electricity from a generator, termed dynamo, is sent through them when immersed in the acid, they extract certain gases composing the acid and accumulate them on their surfaces as it were; this is technically termed electrolysis or decomposition of acid. When the plates have absorbed as much of these gases as possible, the battery is said to be charged, but strictly speaking, not charged with electrical energy but with chemical energy. The store of chemical energy, may, with great ease, be changed back into electricity. This is the operation known as discharging, and when all the chemical energy is used up, no more current can be obtained, therefore the operation charging muss repeated. This method of producing



THE ACCUMULATOR.



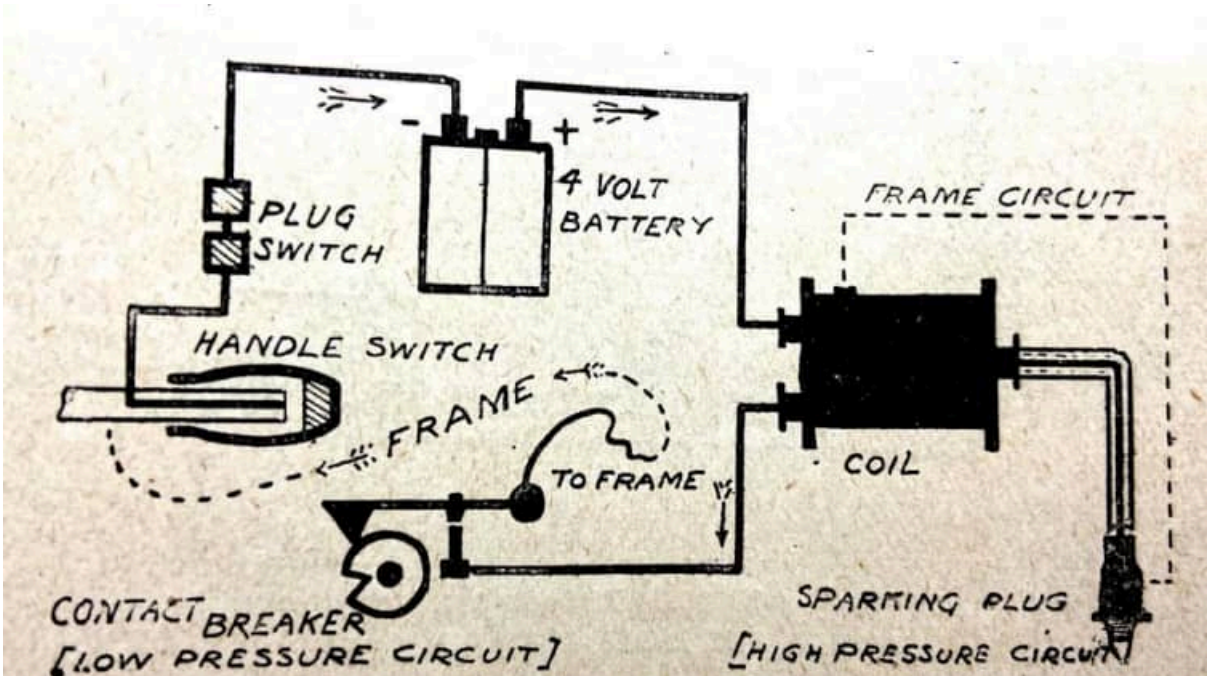
THE SPARKING PLUG.



INTERIOR OF INDUCTION COIL.

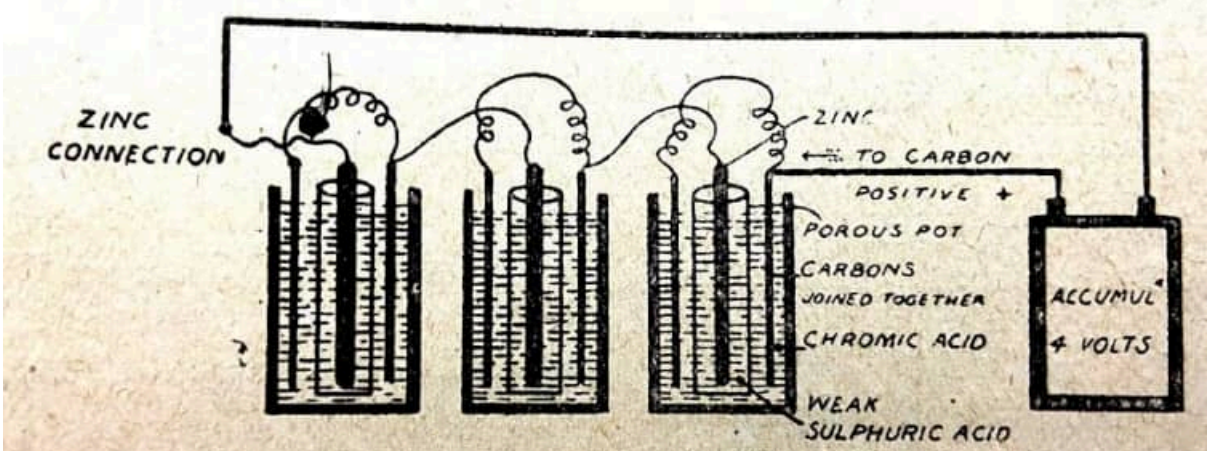
current for sparking may seem a roundabout one, and a much simpler method in fact is to obtain your current by the burning (in a chemical sense) of the metal zinc as adopted in the ordinary household electric bell system, but this method cannot compare with the accumulator

system on the points of reliability and compactness combined with large storage capacity (a most important point in a motor bicycle) and certainty of giving current of a uniform strength at all times. In outward appearance the induction coil or transformer consists of a closed cylindrical case of vulcanite, at the ends of which arc □ðxedsmallbrass□ðttingsknownas terminal screws. Inside the case would be found coils of insulated copper wire, wound over a central 'core' or bar formed out of soft iron wires, while in addition is there is a paper and tinfoil arrangement termed a 'condenser', which serves an important function. The exact purpose of the coil in the electric system of ignition is to increase the pressure or 'tension' of the current, which is supplied by the accumulator, to such a degree that it will be able to jump across a small air space in the form of a spark. Without the aid of the coil it would be necessary to use some hundreds o accumulators connected together to force a current across 1/16 inch even! To understand exactly how the coil increases the pressure involves some considerable a knowledge of electrical theory, but, the non-technical reader might get an idea of the function of the coil by comparing it with the gearing system of an ordinary chain driven cycle. Here the power supplied by the rider's legs is converted into speed by the process of 'gearing up', but there is no actual gain in mechanical energy, in fact power is to a slight extent lost owing to leakage and chain-friction &c, so we may regard the coil as a 'gearing up' system between battery and sparking plug. Part of the power supplied is here also lost by the 'resistance' or friction of the wire coils through which the current passes. The process by which the transformation of the low pressure of the battery to the high pressure available at the sparking plug takes place, is that known as electro-magnetic induction and is described in good text books on electricity and magnetism. The **contact breaker** or **trembler** is a most important detail of the ignition system and forms a part of the motor mechanism. Its function to cause the current to circulate through the coil and stop instantaneously at the exact instant that the explosive mixture in the cylinder is at maximum compression; simultaneously with the stopping of current the spark takes place in the explosive mixture and □ðresit. The construction of the contact breaker is very simple and eīicient in action, and is practically the same arrangement as used by De Dion. On the cam or 2 to 1 shaft of the motor is □ðxed a base plate of vulcanized □ðbre. On this is supported a brass pillar and □ðat steel spring, a V-shaped metal block is □ðxed to the free end of the spring and engages in a notch on the revolving cam. On the □ðbre plate is also □ðxed a brass pillar carrying a screw which is tipped with a tiny bit of the rare metal platinum; this platinum tip presses against a similar one □ðxed to the lower side of the spring. The reason platinum is used for the 'contacts', is because every time the tips separate a small electric arc or □ðame takes place between them when the motor is working; no other metal but platinum will resist the burning and corrosive eīect of this arcing to anything like the same extent. This method of construction is adopted chie□ðy on motors of the Werner type, but a slightly modi□ðed form is used on the Minerva motor, inasmuch as the □ðbre base is replaced by a light metal one, the contact spring being □ðxed in-metallic connection with it, and the platinum tipped screw is insulated from. this base by means of a somewhat thin Mica washer dipped under its support. Another distinguishing feature is that instead of the V-block or spring dropping into a slot in the cam disc, a projection on the disc strikes the block and presses the spring contact on to the screw, thus ensuring a perfect 'make', the tension of the springs, of course, bringing the points out of contact. Both types of contact breakers are now provided with light metal covers for protection from oil and dust. The **'timing'** or **advance sparking lever** is an attachment to the contact breaker, and consists of a simple arrangement of hinges, rods, or levers for moving the contact breaker to various positions of the cam circle. It allows of the spark being produced in the explosive mixture



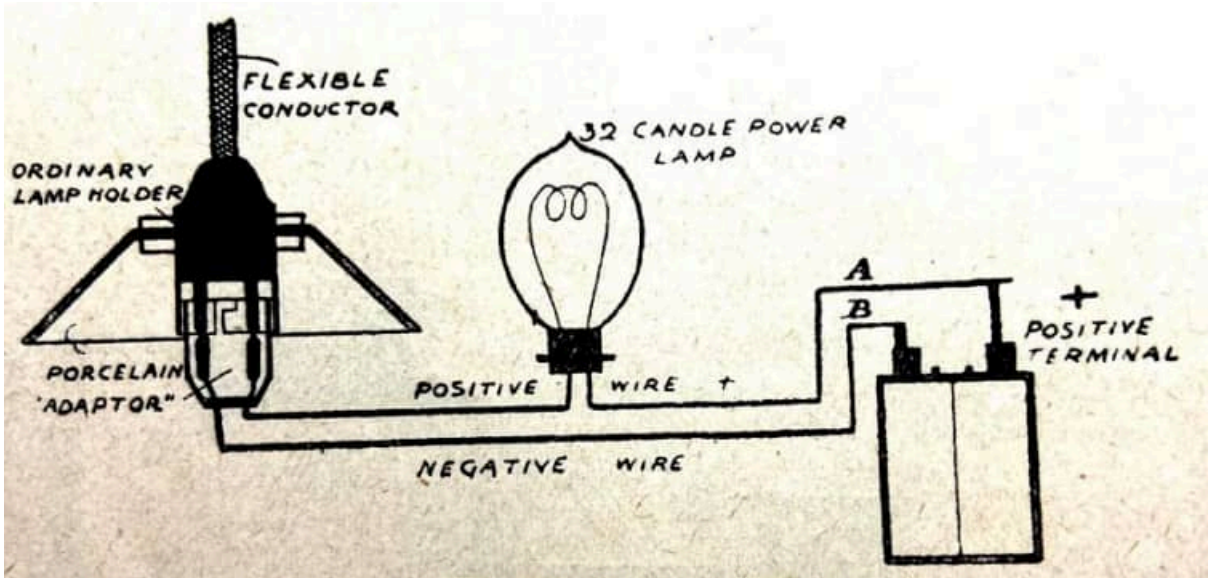
SHOWING HOW THE PARTS OF THE ELECTRICAL SYSTEM OF A MOTOR BICYCLE ARE CONNECTED.

at various phases of its compression, enabling the speed of the motor to be regulated by the operation of late or early joining. As an example, to obtain the greatest power out of the motor the spark must take place the instant the piston has completed the compression stroke. The **sparking plug** serves the purpose of conveying the high-tension current into the combustion chamber of the motor and provides a minute air gap for it to jump across in the form of a spark. In construction it consists of a screwed metal socket into which an insulating bush of porcelain or mica is tightly □ðtted. Throughthecentre of this bush passes a steel or brass wire ending in a platinum tip where it enters the combustion chamber; this tip almost touches the body of the plug, missing it by about ¼₀inch, and this space forms the sparking gap. The outside end of the plug is threaded and provided with nuts so that the high-tension wire from the coil may be attached. Porcelain or mica are the most suitable materials for sparking plugs owing to their high insulating and heat resisting properties, but glass has also to some extent been used. In most machines the **main switch** is arranged in one of the handlebar grips, and may be regarded as a tap which controls the electric circuit. The principle of an electric switch is easy to understand, being simply some method of bridging a gap in circuit by a conductor and thus completing it and allowing the current to □ðow. In addition to the main switch there is generally a second or reserve switch □ðtted of the plug type (distinguishing it from the handle switch) and this consists of an arrangement for screwing two brass washers into contact. The **insulated wires** or **conductors** are of stranded copper covered with indiarubber and prepared tape. The wire carrying the current from coil to plug is more heavily insulated than wires from battery to coil, as the increased pressure needs thicker rubber protection. The position of the coil and battery varies with the type of machine. In the Minerva both are carried in the case □ðxed in the diamond frame, in the Werner the coil is clipped behind the diagonal or seat tube and the battery is carried in a separate compartment of the petrol tank. Some



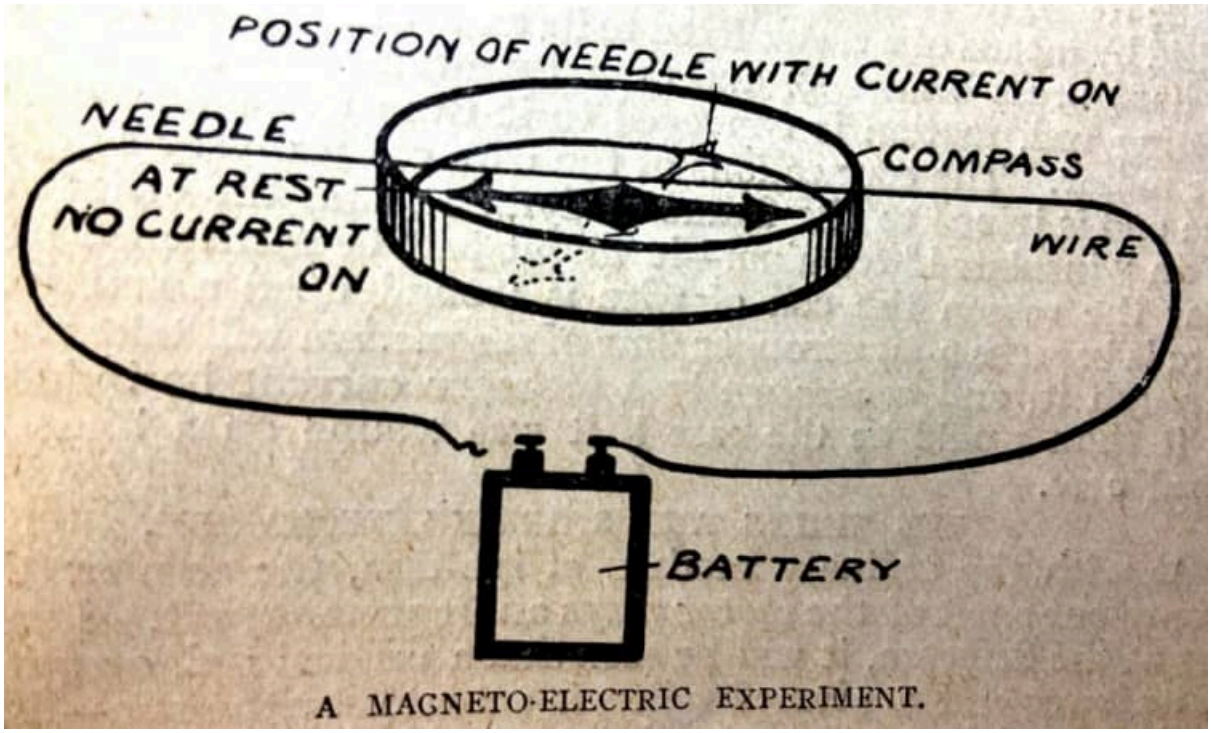
METHOD OF CHARGING AN ACCUMULATOR BY MEANS OF A FULLER BATTERY.

American types of motor bicycles have the battery slung or clamped behind the saddle. The positions of contact maker, switches and sparking plug are practically the same in all types. Now, looking at the diagram, it will be seen how the wires are run to the various parts of the system. Starting at the + or some positive pole of battery, a wire goes to one of the primary terminals of the coil, from the other a wire is connected to contact screw of trembler or make and break, and the spring is directly in contact with frame of bicycle—this, of course, conducts the current through handle-bar to the switch where the wire circuit recommences, is broken at plug switch and goes on again to the negative pole of battery. Then the other circuit, which may be regarded as quite independent and not connected with the other one, consists of one thickly insulated wire from the single terminal of coil to sparking plug direct. The other end of secondary coil makes contact through one of the clips to the frame, so that even in this circuit we have a 'frame' return. Why is the frame utilized as a conductor? From a purely electrical point of view it would be more correct to adopt an 'all wire' circuit throughout. This would entail the use of a more complex design of sparking plug, viz: one with two insulated poles and two thickly insulated wires from coil—which would now have two secondary terminals instead of one; the condenser connections in coil would be diīerent and an extra wire would go to handle-bar switch. So that increased electrical eīiciency would entail somewhat of a loss in simplicity of wiring, design of sparking plug, &c, but still it is a fact that this 'frame' connection is the cause of a lot of breakdowns owing to short circuits taking place. This frame connection is sometimes termed an 'earth' because the bicycle is insulated by the tyres—excepting when wet a partial 'earth' is formed. **Charging the accumulator.** One of the the greatest troubles experienced by the motor cyclist, is: When and how is the battery to be charged? Upon having a store of electrical energy that can be relied on much of the successful running of the motor depends. When the new machine is delivered, the accumulator is supposed to be sent



SHOWING HOW THE ACCUMULATOR CAN BE CHARGED FROM AN ELECTRIC LIGHT INSTALLATION.

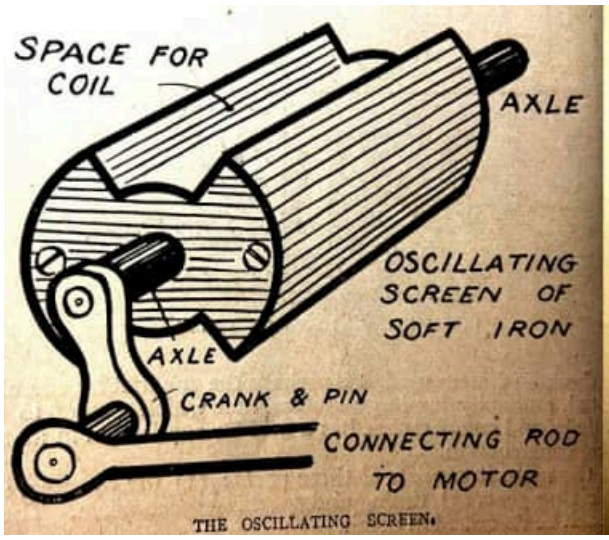
out with a maximum charge in it. This is really rarely the case, because the battery requires a considerable amount of use in the way of charging and discharging to get it up to full capacity. After the □ðrst 100 miles the battery should be recharged. To do this there are several methods—one being to take it to the depot, another one is to get some user of the electric light to allow you to connect it up to one of his lamps in the following manner: Obtain a small □ðttingcalledan 'Adaptor' from one of the electrical □ðttingdealers(thiscosts about 1/6), also a spare lamp holder (2/-) and a few yards of No 18 insulated wire. Make the connections which are clearly shown. The current will then pass through the lamp and battery in 'series', and providing you connect the Positive of battery to Positive of supply and leave on for long enough—known by the battery 'gassing' strongly—the charging will be very eīectively performed. You will require to □ðnd out which is the positive wire of the supply (the positive of battery being always marked with a + or painted red). This is a simple matter. Obtain two scraps of sheet lead, clean them bright and place them in a glass or jar so that they touch each other; then pour into the jar some dilute acid (sulphuric, say, out of the battery—but be sure to put it back; then fasten the the wires A and B, one to each lead plate, and switch on the current. In a few minutes the lead plate connected with the positive wire will turn brown and, provided you always put the adaptor into the holder on the same side, this wire will always be positive. Remember, however, that the current supply must be direct and not an alternating one. The third method is perhaps the one that will commend itself to the average motor cyclist, au because by adopting it he is independent of agents (some of whom ask fancy prices for charging), and he can always rely on his



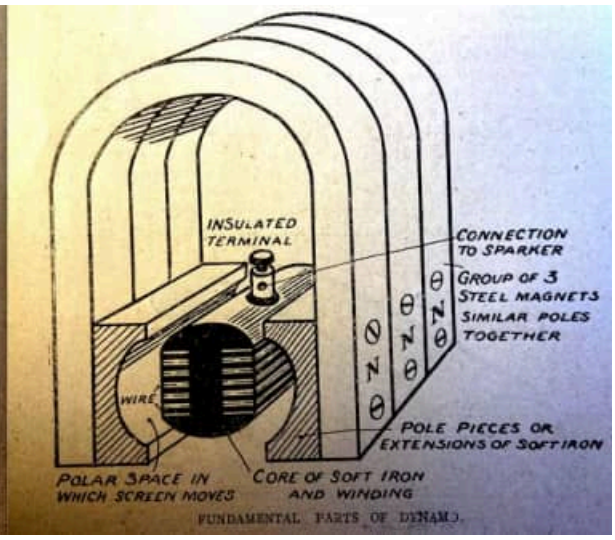
A MAGNETO-ELECTRIC EXPERIMENT.

battery being in the best order. The method is the one of charging your accumulator from a good primary battery. This is very easy to construct at home and far more eīicient than some advertised with fancy names and prices. The type of battery to make is known as the 'Fuller bichromate', which, old as it is, cannot be beaten for giving a strong, steady current for many hours at a stretch. In use there are no fumes given oī and no danger from the liquids used. Three cells will be required to charge a 4-volt accumulator, and you will require the following materials to make them: Obtain three half-gallon stone or glass jars (preserve jars will do), three large porous pots, six large-sized carbon plates with terminals attached, three thick zinc plates rather longer than the porous pots and not quite as wide, so as to go inside them easily, also a few yards insulated wire. Then you require a stock of the following chemicals: 3lb Chromic acid powder, 2½lb strong oil of vitriol, 3oz Mercury. These materials are readily obtainable from a large dealer in chemicals and apparatus (a local chemist might get them, but would charge rather more for them); total cost about 12/6. Having obtained them, proceed to solder or rivet a foot of insulated wire to each zinc plate. These require next to be coated with mercury or 'amalgamated' thus: Put a few globules of mercury on the surface of zinc, and then dip a small pad of rag into some weak sulphuric acid, rub the mercury over zinc with this and it will adhere, giving it a silvery appearance. Do this thoroughly, leaving no part uncovered. Now put two carbons in each jar and also a porous pot containing a zinc and join them together as shown in the diagram. Dissolve the chromic acid in I½ gallons water and then add 2lb sulphuric, and it will get warm and must cool before using. Put this mixture in outer jar and almost □ðll porous pots with water, then add 2oz sulphuric to each. To charge the accumulator, connect positive to carbon, negative to zinc and leave on for about 12 to 15 hours or until accumulator 'gasses' strongly or the acid appears milky in colour; if you have a voltmeter to test with the two cells should show 4½ volts, or well over 2 volts each when charged. When charging is complete remove porous pots and zincs, till again required (do not leave zinc in the acid). The battery should charge up for about six times before new solutions are wanted. Sometimes the battery will lose its charge on standing for a day or two. This may be due to leakage from terminals, or short circuits inside, due to the vibration of machine loosening a pellet of oxide which falls

between the positive and negative plate and conducts the current across, or a plate may have become buckled or distorted and touches its neighbour. These faults are easily detected if your case is made of celluloid. Leakage from terminals is avoided by keeping top of case dry. A good battery will keep its charge for several weeks. Keep the plates covered over with acid of proper strength. Faults at the contact breaker: Mis□ðresareoftendue to bad contact between platinums; keep these bright and □ðrmlytouching;ifthey burn away rapidly it is probably due to too much current passing, or insuīicient capacity in the coil condenser. The □ðrstyoucanput right by connecting '8' of No 20 German silver wire in circuit with accumulator; this will reduce current slightly. The second requires an expert to put it right. Very often a spot of oil splashes on to the platinums, and oil being a non-conductor, breaks the circuit. See that all the wires are clean and □ðrmlyscrewedtotheir respective terminals. Defects in the coil: These are very diīicult to □ðnd,anditis not advisable for the amateur to attempt to take it to pieces. Two things may happen, viz: A broken secondary wire, or internal sparking may take place, due to insulation between windings becoming perforated or from a short circuit. This may be detected by placing the ear to coil case and moving contact breaker with the □ðnger;thesnappingof the spark inside will he plainly heard. Keep the secondary terminal well protected with rubber tape. Defects in the wires: A break in one of the wires is quite possible, although the use of stranded wire minimises it to a great extent. You can □ðnditoutby connecting the two ends of the wire for an instant to the accumulator. If you get no spark at the terminals on touching, the wire is broken; don't keep on for more than a second or two, as this test does not improve the battery. The insulation is rather liable to rot in the vicinity of battery terminals, and allowing wire to touch frame or ease makes a short circuit. Wrap them well with pure rubber tape well solutioned together. It is very important that the wire leading to sparking plug be of the highest possible insulation otherwise there is risk of current sparking through on to the frame, as although the coil may not force a spark through it when tested oī the plug, yet it will □ðndaweakplacein preference to sparking across the compressed gases in combustion chamber. **Electrical terms de□ðned:** Volts—Theunitof pressure or that force which causes current to □ðow.Amperes—Unit of quantity of current □ðowingalongawireor strength of current. Conductor—A material which allows a current to along it readily. Insulator—A



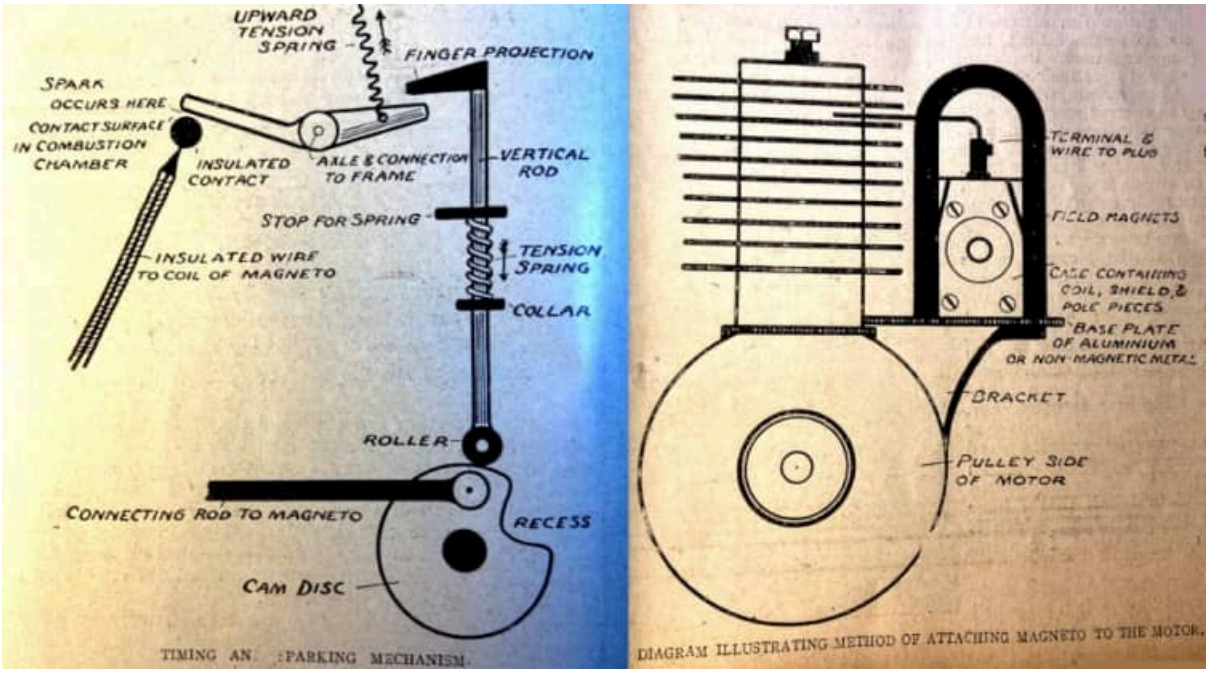
THE OSCILLATING SCREEN.


INSULATED TERMINAL
CONNECTION TO SPARKER
GROUP OF 3 STEEL MAGNETS SIMILAR POLES TOGETHER
WIRE
POLE PIECES OR EXTENSIONS OF SOFT IRON
POLAR SPACE IN WHICH SCREEN MOVES
CORE OF SOFT IRON AND WINDING
FUNDAMENTAL PARTS OF DYNAMO.

material that resists the □ðowofcurrent.Ampere-Hours—Aterm applied to denote the 'holding capacity' for current of an accumulator, for instance, a 12 ampere-hour battery would supply 1 ampere of current for 12 hours, or ½ ampere for 24 hours, and so on in similar ratio. Discharge rate—Meansthe quantity of current you may safely take out of a battery. Short Circuit—A path

which the current takes in preference to going through the apparatus it is intended to operate. **The magnetic system of electric ignition:** In our article upon the electrical details of motor bicycles, the descriptions, etc, were con□ðnedentirelytothe coil-and-battery system of producing a spark for □ðringthegasesin motor cylinder. The electrical energy was □ðrstobtained by the consumption of zinc in a battery, or from an electric light supply current; this we converted into chemical energy, and stored it as such in our accumulator, and we were enabled to get back a large percentage of our electrical energy in a very easy and convenient way at will. Highly eīicient as this system is, it can hardly be called an ideally simple one, with its puzzling (to the amateur) switches, circuits, coils, and contacts. Electric ignition, in some form or other, being a sine qua non, the question is: Is it possible to adopt another method of producing our electricity equally as eīicient, and a great deal simpler in its details ? The answer is—to a large extent—Yes, we can, by adopting the magneto or dynamo methods. The main principle in this method is that of obtaining electricity from mechanical power instead of by chemical means. This is the principle used for producing electric currents on a commercial scale for lighting and motive power. The laws upon which this principle was built up were □ðrstenunciatedbythe great experimenter Faraday, who showed the intimate relation between the electric current and magnetism, and how it was possible to produce an electric current from a magnet, and vice versa. A very easy experiment can be performed by the intelligent motorcyclist himself that will give him a sound notion of this magneto-electric principle; he only requires a small watch or pocket compass needle, a yard of insulated wire, and the battery that works his coil. Let him connect one end of the wire to a terminal of his battery, then hold the compass. underneath so that the needle is in a straight line with it, and with the free end of his wire touch the other terminal for an instant only. The compass needle is at once violently disturbed, showing that the current □ðowingthroughthe wire in□ðuencesitstrongly. Now if he were to imagine ends of the wire joined together (the battery being removed) and the compass needle disturbed by mechanical means whilst under the wire, an electric current would be produced in the wire as long as the magnetic needle was moving under it. It is quite true it would be a very feeble one, but neverthelessa current is produced exactly similar in its eīects from a general, point of view as that obtained from a battery. This fact is the key to the magneto principle: That a magnet moving in the vicinity of a closed 'wire circuit' induces an electric current in the wire. Put brie□ðy, then, a magneto or dynamo machine is one in which coils of wire are caused to rotate or move in a magnetic '□ðeld'bymechanical means, and electric currents are produced at the expense of the mechanical power employed. As will be noticed farther on, we can obtain a current with the wire coils still and the magnets moving—in practice it does not matter whether the coils or magnet move, as long as we move one of them. All that we require, then, is a suitable dynamo, and the motive power to work it, to obtain the current. We have seen from the study of the coil system that it is necessary to raise the pressure of the current supplied by the battery to enable it to 'jump' across the air gap of the sparking plug. Well, if we adopt the magneto method of generating current, we dispense with a sparking plug, in which there is an actual break, and employ instead a little switch, or 'striker', arranged in the combustion chamber of motor, our dynamo being geared in some way to the motor axle: the current thus generated is led into the combustion chamber by a single, well-insulated wire, and before it can return, through the frame, etc, of motor, back to the dynamo, it must pass through the 'striker'. Now if the current is sharply interrupted by the 'striker' breaking the circuit, a spark will occur at the instant of interruption (perhaps a better idea as to why a spark should occur on breaking circuit will be got by comparing the eīect of suddenly stopping a supply or store of mechanical energy, say by braking a rapidly revolving wheel, when we get heat produced). The pressure or tension of the current is also higher at the instant of interruption than when □ðowingsteadily—well, thisspark

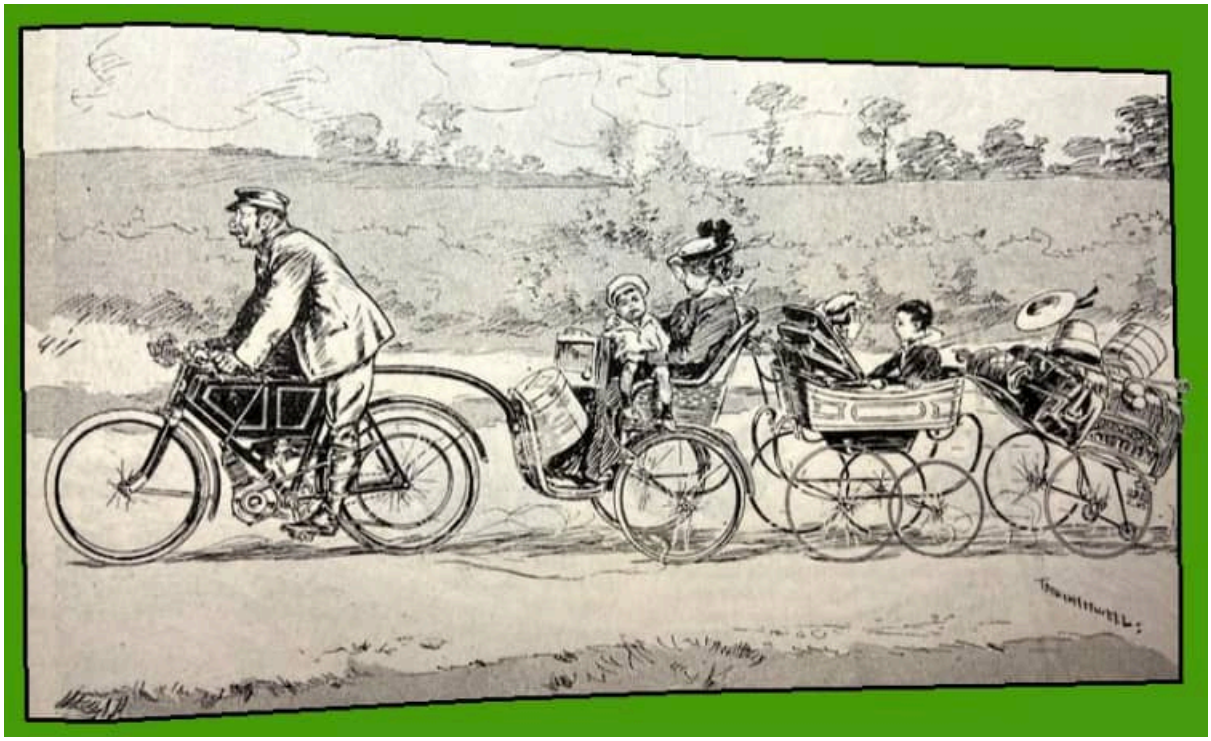
is made to take place in the combustion chamber by a system of levers, etc, actuating the 'striker', so that the circuit is broken and spark produced when the gases are under their greatest compression. The above principles are very ingeniously embodied in a type of apparatus now on the market, and known as the Simms Bosch Magneto and Ignition Gear; although not the only dynamo system used, it is perhaps the one that is generally adopted, especially for large motors, and which, owing to its simplicity and compactness, has a □ðeld for application in motor bicycle construction. In the main it consists of three parts: (1) the dynamo, (2) the driving gear, (3) timing and sparking mechanism…Referring to the diagram, it will be noticed that this consists of four fundamental parts: (1) The U-shaped magnets of hard steel, (2) their pole pieces, or extensions of soft iron, (3) the wire coil, wound on its core or frame of soft iron, and (4) the oscillating shield or armature, also of soft iron. In this particular type of dynamo the wire coils and also the magnets are stationary, the part that actually moves is the soft iron armature or screen; this is so arranged that it serves the function of moving the magnets by moving to and fro itself in the magnetic '□ðeld'. At certain points of its movement it shuts oī, or absorbs, the magnetism, and prevents it inducing a current in the coil of wire which is □ðxed stationary inside it. The rocking movement is imparted to the soft iron shield by means of a crank □ðxed to its axle (this being supported in hard brass bearings), and then, by means of a simple connecting rod, motion is conveyed to it from the cam shaft of the motor. The connections of the wire coil are very simple: one end is joined to the frame of dynamo, and the other one to an 'insulated' terminal—it might just be mentioned here that the reason the coil of wire is wound upon a soft iron core is because a far stronger □ðow of magnetism will take place through it, and consequently a stronger current be induced in it than would be the case if it was wound on a brass or wood core. As with the ordinary method of ignition, the cam on the two-to-one shaft of the motor plays an important part. Looking at the diagram, it will be seen that a vertical rod, carrying at its lower end a pivoted roller, is actuated by the cam—that is, an up-and-down movement is imparted to it; the upper end of this rod carries a projecting arm, and also on the rod itself is mounted a spring to give a downward tension to it. Now with regard to the spark arrangement in the combustion chamber, in place of the usual plug we have one consisting of an insulated metal contact piece, upon which can work a pivoted lever, the shaft or axis of this being brought outside the combustion chamber, and which, by means of an extension piece, is actuated by the projecting arm on the vertical rod, an upward tension is provided for this sparking contact by the spring shown. Having got a fairly clear idea of the positions and functions of the various parts of the system, it will be necessary to learn how the 'phases' of the □ðring operation synchronise, or keep in step as it were, with the strokes of the motor piston. During the suction stroke, the vertical rod is forced up by the edge of the cam, consequently the projecting arm keeps clear of the spark lever, but as soon as the compression stroke is near completion the recess in the cam comes round, and allows the vertical rod to descend sharply. This movement, of course, actuates the spark lever, which breaks contact with the insulated contact piece in the combustion chamber. Now, exactly at the same instant the induced current in the coil of dynamo will be at its full strength—due to the screens being clear of the magnet poles—and being interrupted, causes a spark to take place



in the combustion chamber, and so the charge is □ðred. It will be noticed that the connecting rod end describes a circle with the cam, but owing to the much greater 'throw' of the crank attached to the screen, an oscillatory movement only is communicated to the screen. The method of advancing or retarding the time of ignition in this system is to alter the position of the cam slightly on its shaft, this being eīected by a simple screw arrangement regulated by hand. Any derangement of the magneto system is more likely to be due to wear and tear of the moving parts than to any purely electrical defect. The only defects likely to develop are a breakdown of the sparking plug insulation, or corrosion of the contacts due to the gases and heat; the magnetism, however, of the □ðeld magnets of dynamo may slowly weaken—due to the vibration of the motor—which means that the sparking current will gradually get weaker. It is not a diīicult matter to re-magnetize them; this will be best done by the makers, but it is possible for the amateur to do it himself if he possesses a few large accumulators and several yards of insulated wire it only being necessary to pass a strong current in the right direction around a coil wound temporarily over the magnets. These must then be carefully replaced so that similar poles are in contact—a most important consideration: Compared with the coil, the magneto scores distinctly; there is only one wire circuit, no battery to recharge, no trembler; on the point of weight the magneto should be even less; a battery of fair capacity weighs eight to ten pounds alone. It is easier for the novice to grasp its principles, and to keep in order. What, then, can be said against it? Well, from a mechanical point of view it is not desirable, to add any more moving parts to the motor; in fact, to reduce the present number is the aim of all good designers. Extra parts moving at high speed mean wear and tear necessitating renewals; then the magneto absorbs power from the motor—not much, it is true, but still it has to be allowed for. Its appearance close up to the motor may also be objected to by some, but on the whole its advantages are such that it should prove a serious rival to the coil system in the future. [It is evident, both from the letters that we have received on the subject and from the discussions arising, in motoring circles, that the magnetic system of electric ignition is an all-absorbing one at the present time. The article just concluded has gone over the question pretty closely, and we shall heartily welcome inquiries or further suggestions on the subject from our readers. The Simms-Bosch system has now had a pretty extensive testing, so we may con□ðdently expect some interesting details to be forthcoming. Our object has been to clearly set forth in the

articles on ignition the respective claims of the coil and magnetic systems.—EDITORMOTOR CYCLING]"

IN CASEYOUTHOUGHTcomplaints about bikes becoming to heavy and too complex were something new, consider this plea, headed "The Simpli□ðcationoftheMotor Bicycle" from the very □ðrstissueof Motor Cycling: "The □ðrstquestionthe enquirer asks in regard to the possibilities of the motor bicycle relates to the knowledge necessary to ride and operate same. It consequently follows that the □ðrstaimofdesigners must of necessity be towards the simpli□ðcationofthe machine as a whole…Ifthe motor bicycle is to bike its correct place in the □ðeldofself-propelledvehicles, it must be lighter than at present ; capable of climbing ordinary hills, either without or with but slight assistance from the rider…Itmust also be a more cleanly machine to manage…theactuating levers, etc, must be more handy and, if possible, fewer in number than at present…wemaysafely expect our designers to place us in a position to obtain a perfect control without removing our hands from the grips…thepresent necessity of removing the hands from the handle bar in order to control the motor must, of necessity, deter any but the skilful and intrepid rider from adopting what promises to be the most widely used of any motor-propelled vehicle…Thewriteris of opinion that the motor should be automatically lubricated while in motion, and that the supply of lubricant should cease automatically on the stoppage of either motor or machine. Bearingsshould be oil retaining; the presence of lubricating oil on the outside of the engine being serious handicap to the general use of motor bicycles…Valvesand working parts should be more accessible than at present…itwould appear to make for simplicity if the carburetter, which need be of but small size, were attached directly to the engine, instead of to the frame as in the majority of current designs…Thedirectgain would be the increased room for petrol and the more self-contained character of the motor. Ignition under present practice entails the most unsightly and cumbersome attachments; it is consequently fair to assume that a mechanical generator will ultimately supersede these…Thebeltis simple in appearance only, it is wasteful as a transmitter, dirty, and requires frequent adjustment and repair…Upto the time of writing, practically no English engineer has specialised himself upon the designs for the production of the motor bicycle. In view of the increasing demand for machine it is obvious that in the near future more than competent mind will be at work on the subject, in which the points enumerated above will cover only a fraction of ground which presents itself…It may therefore, with con□ðdence,beexpectedthat within a few months we shall have machines in which, apart from unavoidable frictional losses, all the power given out by the motor will be conveyed to the driving wheel—machines which will be operated without removing the hands from the handle-bar, in which all working or delicate parts will be protected from injury by falls, or from contact with oil, where the latter is detrimental to machine or rider; machines in which the electrical equipment will he of a more simple and mechanical character. If this forecast is only partially true, we are on the eveof the opening of an industry as large as the original bicycle business, which, at the time of writing, is one of the most important, not only as regards capital and men employed but also in relation to the economic conditions of the country and the dispositions of its population."



“The holiday season. True economy suggests this sort of thing to the motor cyclist with frugal mind.”

“CYCLISTS WHO HAVE LEANINGS towards the new pastime of motor cycling are requested to address the editor on any subject about which they are in doubt. It is the mission of this journal to make cyclists converts to a fascinating recreation, and we place our columns and our services at the disposal of any waverers who need advice. Let your motto be, ‘When in doubt, consult Motor Cycling.’”

“WE KNOW OF AT LEAST four speed machines being made by racing enthusiasts with cylinders having diameters of 80mm bore and 80mm stroke, and larger. How about those ‘monstrosities’ that it was suggested would be absent from motor-bike races and destroyed most bicycling racing, according to one authority? If well designed, such machines should be capable of at least 45 to 50 miles an hour on the track. The sport of motor-bike racing promises interest no excitement. Racing men, take note.”

“IF IT WERE NECESSARY to prove the widespread interest which is being taken in the development of the motor cycle, such proof would be found in the attentive assembly of members of the Cycle Engineers’ Institute who met at the Grand Hotel, Birmingham to hear and discuss Mr A Craig’s lecture on Motor Bicycles. The lecturer divided his subject into two essential parts, the □ðrst being descriptive of the machines at present on the market, the second concerning the general laws and principles which govern the design and construction of the machine. A marked indication of the scope of the industry was aīorded by the fact that seventeen machines were referred to in the □ðrst part of the paper. Of these the Werner was given the pride of place as the most representative of the front driven type, although the new En□ðeld was referred to as retaining in a marked degree the advantages of the □ðrst-named machine. The Singer machine, with its compact mechanism, was in the lecturer’s opinion the most notable example of gear-driven motor bicycles; it was also referred to as representative of English design and workmanship. The full list of machines described were as follows: the Werner, front and rear driven, the Minerva, the Derby, the Brown, the Mitchell, the En□ðeld, the

Progress, the Chapelle, the Singer, the Holden, the Werner and Phoenix tandems, and the Humber, and a new type, the combined work of Messrs Accles, De Veulle, and Starley…No doubt could remain in the minds of the audience as to the speaker's preference for the spray type of carburetter, in which opinion he was fully justi□ðed by the experience of the other speakers…The question of transmission naturally involved a large share of Mr Craig's attention and of his critics. The belt was given full justice as being a useful and obvious means of transmission, the general consensus of opinion being that it would eventually give way to chain or spur gearing, in conjunction with some form of clutch which would allow an elastic medium between the motor and the driver. In connection with transmission the advisability of a free engine on down grades was considered…with a drive such as the Humber, or the proposed Accles-De Veulle-Starley machine, this is aīorded by throttling the engine when the machine will overrun the free wheel clutch by which the power is

L-R: "Worm drive is exempli□ðed in the Accles, De Veulle and Starley motor bicycle." The Humber.

transmitted. In Mr Craig's opinion chain transmission will probably become the most popular in all cases where the engine is not suīiciently near the road wheel to admit of spur gearing being used. Its eīiciency is undoubtedly higher than that of the belt, and, as the author had remarked, it can be made as smooth in its action. If the reduction from the engine to the road wheel be attempted in one step, a very large and unsightly sprocket wheel or belt pulley must be □ðxed to the driving wheel. With the high eīiciency obtainable on a chain drive it may be worth while to make the reduction in two steps, in which case the drive would appear less clumsy, and a suitable gear-case could be easily □ðtted. Chains were used at the earliest stages of motor bicycle construction, and had the initial development of business taken place in this country instead of abroad, most probably the chain drive would be as common as the belt drive is at the present day. Worm drive is exempli□ðed in the Accles, De Veulle and Starley motor bicycle…By the use of worm gear the necessary reduction between the engine and the road wheel can be eīected in a very small space, and although the worm is certainly less eīicient than spur gearing, yet if well designed and properly made it is doubtless more eīicient than the belt drive commonly used…Dealing with the future possibilities of the motor bicycle Mr Craig remarked: 'There is a very wide □ðeld for the designer of motor bicycles, as tandems and spring frames have yet to be dealt with. If water-cooling be adopted, there should be no diīiculty in enclosing the motor and accessories in one portion of the frame and concealing it with a panel on each side. By this means a very neat result could be obtained. Details cannot have too much attention, as the eīiciency of the machine as a whole largely depends upon them…The motor bicycle is the simplest, and consequently the least expensive, form of motor vehicle which can be made. The fact that it has proved practicable in actual use insures its popularity in the future; indeed, the trade has already assumed much greater proportions than is generally known…The paper throughout was of the most thoughtful and practical nature, and fully deserved the attention it

received from one of the largest audiences that has ever attended a meeting of the Cycle Engineers' Institute…Thediscussion raised one point of distinctive interest—namely, the almost unanimous desire on the part of riders for some means of supporting the bicycle when at rest."

"TRANSITION,ORONLYA PHASE?It is something more than an assumption, it is getting pretty close to a certainty, that the readers of these columns arc cyclists who have either taken up the motor cycle or who contemplate such a step. As a cyclist, I have taken that step, and I observe, not without a qualm or two, that changes, unpremeditated, unexpected even, but relentless all the same, are taking place in my cycle stable. Thethin bodyless oil with which the cycle was wont to be lubricated has been deposed from a certain handy spot and in its place there stands a can, a much biggercan, of lubricant which always irresistibly reminds me of the treacle of my youthful days. Small wallets, small saddles, little lamps and lilliputian repair out□ðtsareall pushed up into the corners of the shelves, their places being usurped by the more bloated and wealthier-looking articles that appertain to the motor-cycle. Thetwo-gallon tins of petrol appear as strangers in a strange land; even the motor bicycle itself stands out in the centre evidently scorning the light rack wherein the cycles rest."

The Cyclists' Touring Club dates back to 1878 (and is still very much in business). With motorised bicycles appearing in greater numbers, W Rees Jeīries of the CTC'sMetropolitan District Association graced the pages of Motor Cycling with "The CTCand Motor Bicycling"…

"THE APPLICATIONOFMECHANICALpowerto the bicycle is a development the consequences of which it is impossible to foresee. At the Crystal Palace Show this year was to be seen one of the original RoverSafeties. It looked crude and ugly enough, yet, from it, cycling took a fresh start and spread to its present dimensions. Not more ugly and imperfect than JKStarley's □ðrst safety is the motor bicycle of 1902, yet, who knows but that it too will 'set the fashion to the world' and inaugurate a new era in the history of cycling. Motor bicycles are, at present, in the experimental stage. Accordingly, it behoves all those interested in cycling to work together to complete and perfect the new invention. Co-operation is the only road to perfection. Manufacturer and rider, newspaper and club, each may contribute towards the development of the new machine. And a good start has been made. Enterprising manufacturers are investing capital in the premises And machinery necessaryto the construction of eīicient motor bicycles. Thecycling press, as represented by the go-a-head management of 'Cycling', are putting money and brains into a journal which is to be the means of intercourse between those interested in the new machine…TheMetropolitanDistrict Association, which embraces all the club members within the Metropolitan Police District, has, in particular, determined to do all that it can to help the new movement. And there is much to be done. Themotor bicycle is, as I have said, at present in an experimental stage. Manufacturers are willing, even anxious, to obtain suggestions from all sources. It is desirable, therefore, to collect and sift the experiences of riders and bring them to the notice of the makers. A start will be made at the □ðrstmeetingof the Motor Cycle Section, on Tuesday, February 11th, which, curiously enough, synchronises with the □ðrstissueofthis paper. Part of the evening will be devoted to a free exchange of experiences and opinions as regards the various types of motor bicycles…Themotor cycle must also be made an easy means of international national travel. It is desirable, accordingly, to prevent any unnecessary restrictions upon its free movements across the boundaries of States. I am myself considering the possibility of a run across the Pyreneesthis year on a motor cycle. I have visions of landing at St Malo, journeying through central France, and then cycling over one of the passes of the Pyreneesinto Spain. But if the regulations which the French Government are now enforcing upon automobilists arc also enforced upon motor bicyclists, international

touring on a motor bicycle will be somewhat of a diīiculty. However, the Foreign Touring Arrangements Committee of the CTC has quietly set the machinery which it has at its disposal at work for the purpose of smoothing over or preventing diīiculties in connection with international touring. Finally, the Metropolitan District Association is anxious to develop the social side—a somewhat neglected feature of CTC life. By introducing motor bicyclists one to another, by arranging from time to time club runs, and by organising for the free and full exchange of opinions and experiences, much can be done in this direction. Other branches of activity could be suggested, but even from this brief outline it will he seen that the Motor Cycle Section of the MDA has plenty of work before it. And the future is with it. 'The minute a man takes up a motor car or motor cycle,' says Mr Pennell in the current 'Contemporary', he ceases any longer to care for the ordinary machine.' Many think this is an exaggeration, but there is a large element of truth in it. Even in the present stage of development the motor cycle is a fascinating machine. When one has on whizzed through the air at 20 miles an hour without exertion, when head-winds have ceased to trouble, and hills have given no cause for anxiety, one is not satis□ðed until the experience has been repeated. In due course I doubt not a motor bicycle absolutely trustworthy for touring purposes will be produced. To bring that day quickly is one of the objects of Motor Cycling and the Motor Cycling Section of the CTC. May their joint eīorts soon be crowned with success." Sixteen bikes were on show, courtesy of Singer, Excelsior, Chappelle, Ivel, Humber, En□ðeld, Bradbury, Bowden, Derby, Trent, Martini, Holden, Phoenix and Shaw.

VILLAGE CURIOSITY

HINTS AND WRINKLES.

Little things of great importance for Motor Cyclists to keep in mind.

"Under the heading of 'Hints and Wrinkles' we shall give, week by week, a series of useful and often homely tips for overcoming minor motor troubles, and other information regarding the motor. which should be borne in mind. In every case the hint or wrinkle given will he prompted by practical experience, and we shalt always be pleased to hear from readers of Motor Cycling who are able to oīer a tip for the bene□ðt of their fellow motor cyclists."

“DO NOTTRYEXPERIMENTSwiththeengine unless you are prepared to pay a goodish sized bill for putting it in order by the experienced mechanic. Of course many riders are expert with the engines, but before the year is out we shall have a number of motors running in the hands of inexperienced riders, and it is to them that our remarks apply.”

“KEEPTHEWHOLEOFTHEinternal parts of the engine which are subjected to the explosion as clean as possible. It will well repay the rider the trouble entailed upon him, as deposits rapidly form within the explosion chamber, especially near the exhaust valve-outlet. The presence of these deposits near the sparking plug will quickly develop short circuiting, and the engine will not work.”

“REMEMBERTODRAWthe ignition lever back on restarting.”

“USE ASLITTLEgasas possible—it keeps the engine cool and economises fuel.”

“WELLINGTON’SKNIFEPOLISH,mixed with lubricating oil, is very good for valve grinding.”

“EXHAUSTVALVESfrequentlyburn oī, and it is advisable to carry a spare one which has already been □ðttedandground in.”

“SHORTCIRCUITtroubles are greatly lessened by arranging the induced (sparking plug) wire so that it does not touch any metal by suspending with rubber tape.”

“THE CENTREWIREofDe Dion plugs is very weak and occasionally turns oī altogether. This can be faked by □ðrmlypressinganordinary pin down the centre hole in the china, then carefully cutting the head oī and curving the protruding end to the other point, and regular □ðringwill result.”

“EVERYRIDERSHOULDLEARNasquickly as possible the manner in which the motor works, how taken to pieces for cleaning, and how to do the necessary adjustment. This is not diīīicult to learn, but care and accuracy are necessary If the parts are not numbered, they should be carefully marked piece to piece, either with a small centre punch or small type □ðgures,nothatif the whole of the parts were well mixed they could be speedily sorted out again.”

“IN WETWEATHERkeepyourbelt well oiled with castor oil.”

“REMEMBERTHATwhenthe roads are greasy the tip is to ‘steer straight’.”

“A WEAKexhaust valve spring will cause your motor to be sluggish.”

“SURFACECARBURETTERSalwaysrequireattention to the air lever to get best results.”

“A WEAKSOLUTIONofsulphuric acid poured in the vent hole will put fresh life in dry batteries. Always watch such battery carefully and don’t rely for long distances on it.”

“MAKEANDBREAKcontact blades should be adjusted so that a visiting card can be inserted between the points when not in contact.” [This tip was still in circulation when I started riding in the late 1960s. If memory serves the rider’s handbook of my A10 suggested, in the absence of feeler gauges,the check the points clearance with “a business card or stout note paper“; ignition timing involved a cigarette paper—Ed.]

“WHATEVERYOUDO,do thoroughly, seeing that you properly tighten bolts and nuts without overstraining them by using long spanners; those sent with the engine are long enough, and many frequently break bolts by using too great a leverage.”

“SEE THAT THE PETROL tank contains fresh spirit for each run, for unless petrol is stored in an air-tight case it speedily loses its eīectiveness. Far better to empty the tank at the end of each run, and then you know the true state of things, having to □ðllan empty chamber. You may be landed with bad spirit just at the time you wish to start, and have a considerable delay in emptying and then re□ðlling.”

“A VERY GOOD TIP in winter to those who are not ‘□ðutterbyes’, and who use machines belt-driven, more especially if □ðtted with a jockey pulley, is to adjust the belt rather on the slack side. A member of the staī, who rides fairly consistently right through the year, has not had a side-slip this winter or autumn, and he attributes it to always easing the jockey pulley oī a ‘wee bit’ directly he strikes a patch of grease. Side-slips are often induced by the driving wheel having a tendency to revolve without propelling the machine forward, thus destroying the initial ‘bite of terra □ðrma’ necessary to the up-right position.” […and this, I believe, is the □ðrst description of wheelspin—Ed.]

“THE NEW HUMBER (chain driven) motor bicycle is reputed a □ðyer.”

“THERE ARE NOW □ðve motorbicycles in New Zealand, and this type bids fair to become the most popular over there.”

“DON’T EXPECT THE SAME results from your engine as in summer. Everything is against the small engine in winter, from batteries downwards.”

“WE SHALL BE pleased to hear from motor cyclists in the Midlands who would care to join a Midland section of the Motor Cycling Club.”

“THE UNITED STATES is strong in automobile clubs, having 36, followed by France with 27, Germany 15, England 10, Belgium 8, Italy 7.”

“ITALIAN MOTORBICYCLE races: Italian cyclists, like their English brethren, are moving in the matter of motor bicycle races. The Turin Cyclists’ Club will hold a race for the single-track machines at their opening meeting to be held during the □ðrst fortnight of March.”

“JARRETT’S NEW SPEED motorbicycle is now being made by Werner Freres. We believe the dimensions of the engine are the largest that can possibly be □ðtted into a bicycle. When the ‘speed beast’ comes home, we reckon that the big car times will be closely approached.”

“RIGAL, THE ‘KING OF MOTORCYCLISTS’, as he is known on the other side of the Channel, has had to abandon his attempt on the 100 kilometre road record, at present held by Beconnais in 1hr 18min 54sec. He made a very satisfactory trial on Sunday, the speed working out at 65 miles an hour. On the following day he started for the record attempt proper, but after going for less than three miles he was forced to abandon the trial owing to a severe snowstorm. He will try again very shortly, if M Tampier, the timekeeper, is available.”

“OUR READERS WHO WISH to hire motor bicycles may be glad to know that Werner, Minerva, Ormonde, and Mitchell motor bicycles may be hired for the day, week, or month from the Central Motor Co, 46a, Tottenham Street, Tottenham Court Road, W.”

“NOW IS THE OPPORTUNITY for placing the motor cycle industry upon a simple and uniform basis. Later it may prove impossible.”

SEVEN THOUSAND MILES ON A MOTOR BICYCLE.

How I Started, with some of the Incidents that occured.—By J. van Hooydonk.

Josephvan Hooydonk was a name to be reckoned with in the pioneer motor cycling fraternity; he went on to found PhoenixMotor Cycles.

"THE WRITEROFTHISARTICLEhasjust accomplished his seventh thousandth mile on a motor bicycle, and the recountal of some of his experienceswill, without doubt, interest the reader, especially in view of the fact that Mr van Hooydonkwill attempt a 200-mile non-stop ride on the Crystal Palacetrack nextweek: 'Many a boy, when asked as to the occupation he would like to adopt upon reaching manhood, will quickly reply, "Why, become an engine-driver." Strangebut true it is that the fact of being an engine-driver possessesa great fascination, and no doubt but that to this trait must be attributed the great enthusiasm displayed by persons of all dispositions when once they take to motoring. Now, motoring, we know, is an expensive,if pleasant, hobby, and it is the motor bicycle we have to thank for enabling many of us to participate in the exhilarating pastime without encroaching too far upon our □ðnancialresources.Ihave ridden cycles of all descriptions for a good many years, enjoyed long tours, taken part in a good many races with just. suīicient success to make the sport interesting, and really thought there was nothing in creation to touch cycling. When I □ðrsthaddealingswith a motor bicycle, I candidly confess that I did not like the look of the beast, and certainly did not think much of it. It all came about through a lazy brother, who would persist in the statement that as long as he could get about the country without quite so much hard work, he would be just as happy. A motor 'bike' was made to his order, and when all was ready, I started him oī on his journey up the North Road, while I would follow on my trike (of which I was the motive power) in case he should require towing home! My surprise was great when the motor went straight out of sight, and after my going 'all out' (and I was fairly □ðt)□ðndingthelazyoneatBarnet waiting for me, cool as the proverbial cucumber and smiling pleasantly, while I was hot and perspiring, not to say annoyed at being dropped by "a thing that goeswith oil". Still we must bow to the inevitable, and this I did. Promisingthe owner of the, to me, still infernal machine not to go too far I trusted myself to its tender mercies. Since then I have ridden about 7,000 miles, ten of which were done on an ordinary bicycle. I well recollect this □ðrstridestraight up the Hat□ðeldRoadasfar as the "cutting", where on □ðneSundaymorningsthehabitués of the road sit on the bank watching the many □ðnishesofthecrowds coming up the hill, or perhaps enjoying the innocent fun of one of the party going down the hill to □ðnda'bite',as they have it in the classics. On many occasions has the motor rider caused an unwary cyclist (who thought that motors would not go up hill) to get half-way up the slope only to then turn on full speed, and leave the pedal-pusher struggling, while the little crowd would look on, smile, and perhaps encouragethe man by saying, "Go on, sir! You'regoingwell!" While I found the motor a pleasant means of getting about the country, I found, also, that my chances of taking part in any cycle races would be small indeed—as I did no ordinary riding I soon became very un□ðt.Competitionis always a great stimulant, and, as there were no motor cycle races, it occurred to me the only way to have a little excitement was to go for the Land's End to John o' Groats record, a performance which was stated to have been accomplished in a certain time. If I failed, it would at least be an experience worth having. An experience it was! Johno' Groats is a long way from I.and's End! Although I only covered about two-□ðfthsofthe journey, I learnt a lot, and it really is astonishing how many varieties of weather and roads one can □ðnd,andhowmuch can happen in a day and a half. I paid for my experience,

and it is my □ðrmintentionto have my money's worth before another winter comes round. It has been said that my programme was too ambitious, but even now I consider that unless the motor bicycle can beat the time of the human propelled machine, there is not much to talk about. One thing was very clear to me as soon as I arrived at Land's End, and that was the great respect everyone about the place has for GP Mills. When covering part of the journey it made me think still more of the rider and his marvellous performances. Yet thirsting for another experience and a longish journey, I made arrangements for checking and feeding to enable me to accomplish the journey from London to York without a stop. Many of my readers will, no doubt, recollect the □ðrstfoggydaywehad early in November, when all the country was enveloped in semi-darkness. This was the day that fell to my lot; and, not to mention the unpleasant look of things, it was, in places, very diīicult to see the way. About □ðvemilesfromSelby, a river crosses the road on an angle, a bridge being built over it and crossing it perfectly square, thus making a sharp bend in the road. On this occasion the bridge looked like a slope and the wall appeared, in the damp darkness, like a continuation of the slope. Tackling the hill 'at 25 an hour', and keeping straight on, the wall was just grazed by my front wheel, when, suddenly observing the obstruction, I, by the merest slice of luck just managed to escape either a nasty smash against a stone wall or a cold bath in the stream. For a second I could feel myself being hurled to—somewhere, and all the feelings of a smash I had some years ago, when I was taken in an unconscious state to a friendly farm, came back to me in the most realistic manner. However, all went well until about two miles beyond Selby, when, with a loud report my back tyre burst, and after covering 187 miles in 8¼ hours, □ðrstcoveredinice and then mud, I came to the

“JVan Hooydonk. Specially photographed for Motor Cycling Mr van Hooydonk is depicted rigged out and with his motor bicycle in trim for the 200-mile non-stop run on the Crystal Palace track during the Motor Show.”

conclusion that luck was against me, so walked back to Selby, where, after a bath, and a square meal, I realised that again I had paid for experience, but vowed at the same time that I would have value for money before long. By the way, my Biggleswade checker (sent out by an old friend—Dan Almbone) seeing me covered with ice. through travelling at a high speed, shouted out, wishing to know if I was training for an ‘arctic exploration’! Not always, however, have my trips resulted in disappointment, for the motor bicycle has contributed the lion’s share towards many a pleasant holiday. In the summer of last year, when my family were holiday-making in a rural village in Essex, it enabled me to run over the 60 odd miles on week ends in a quicker and far more pleasant manner than could I have done in any other way. Naturally, the machine attracted a considerable amount of attention in the villages, and the ideas of the locals were both strange and entertaining. Sitting in the smoke room of a hotel, one party asked me whether I had ever seen ‘one o’ those motor bicycles’, and on my replying that I had, he volunteered the statement that one came through the village that morning at quite 40 miles an hour. When,

□ðnally,thewifecame back to town, the motor bike again came in very useful, for while my better half' was riding an ordinary free-wheeled machine the engine did the work for both, we riding side by side. Thejourney from Colchester to London was accomplished inside three hours, which was not by any means bad travelling. On another occasion, a friend was going for a 24 hours' time trial, when, by the way, he was fortunate enough to break record. I promised to look after him, and being able to cover 25 miles in an hour against his 17 or 18 I was enabled be always there, or thereabouts, without feeling any fatigue, and at the same time making a nice outing of a generally wearisome job. Between Friday evening and Sunday, about 450 miles were covered, and not once did the rider feel that the miles were unduly long and where one would have felt the exertion for some days under usual circumstances, it merely left a healthy recollection of a pleasant holiday. Knowingthat the club of which I am a member was not in favour of motors, it rather occurred to me at □ðrstthatmycompany would have been objected to when riding the "Puīing Billy", but far from it, as the machine is almost noiseless, and throws no dust; consequently the men are only too glad to 'hang on' and get the shelter. Themost pleasant rides I have experienced have been in the summer days, when, after working hard, I found it was a most exhilarating sensation to leave home in the cool of eveningsand ride about 40 or 50 miles, getting all the bene□ðtoftile fresh air without having la undergo any exertion. However, when the nights are dark, it is necessaryto carry a powerful lamp—acetylene for preference, for, travelling at a fairly good rate, one most be able to see a good distance ahead. Ajourney to Coventry is memorable to me on that score. Having been delayed, my start was later than I anticipated it would have been, and I found a bare four hours were left to sir to cover the 90 miles to the midland town. When the darkness came on in earnest the faint light of the lamp was then carrying, not acetylene, seemed to conjure up all sorts of obstacles, and after peering into the darkness, and straining my eyes to their utmost, I would suddenly pull up, only to □ðnd that there was nothing whatever in the way. This having occurred several times, I seemed to become used to the surroundings and was beginning to think that it only required practice after all, when suddenly a lumbering cart carrying no light whatever, was only missed by the nearest shave. This was, I fancy, the narrowest escape I have had up to the present. Naturally, through travelling at a much higher speed, one is on an obstacle before one observes it, very little time, as a rule, being left to alter one's course. Therun to Southsea with the Automobile Club proved a very enjoyable outing, only the regulation of having to keep to 12 miles an hour on a machine that is capable of travelling at double the speed becomes monotonous, so I found some amusement in running up and snapping the cars as they came along. Therun home on the Sunday was rather more exciting, for being no longer under the well-meant restriction of the dub, there was nothing to prevent cars and bicycles trying'conclusions' on the lovely stretches of the Portsmouth road. Stopping for a bit to admire the grand scenery on the top of Hind Head, well known as the Devil's Punch Bowl, it was my good fortune to fall in with another machine of my class, and also a motor tandem bike. Appearances indicated a little excitement, but □ðrstthe tandem and then the single hoisted the white □ðag,anddeclaredthebattle oī. 'Do those things often co wrong, sir?' is the question one is asked at almost every stopping place. Well, occasionally, like all good things, they do go wrong, but at the same time, in 7,000 miles or more of hard road riding, I have not once been left with the 'crock' disabled; and since the Southsea tour in November, have had no occasion to do anything whatever to the machine or its mechanism: Yet riding every week end during, the very wet winter we have had should prove that, for any slight trouble one might experiencethere is quite suīicient pleasure to make the balance very much in favour of the motor bicycle.'

"A □ðneburstofspeed. Judgingby the manner in which the dust is □ðyingonefeelssome doubt as to whether the legal limit is being strictly observed."

OTHER PEOPLE'S VIEWS.

"Under this headingwe shall print the opinions of our readerson all matters concerning Motors and Moting, and we cordially solicit their co-operation in making the pagea medium for interesting and pro□ðtablediscussion."

"SIR—THESIDESLIPof motor bicycles appears to be a subject of considerable interest. I □ðnd that a bicycle with motor placed between the wheels is not more liable to side slip than a motorless bicycle, and this refers to motors of moderate power, as I have not ridden one of high power. I rode a motor bicycle with the motor in the back wheel, and afterwards free wheeled several times on a bicycle without a motor, placing my body right behind the saddle and low down, in order that the centre of gravitywould, as near as possible, be in the same position as that of the former; and I found the former much more liable to side slip. Overfourteen years ago I rode the □ðrstpneumatictyredbicycle, which was higher than other safeties. Since that time I have ridden very constantly bicycles of varyingheights, and I have always been of opinion that the higherthe centre of gravitythe more easily is a bicycle steered. I don't know that my theory is correct, but I believe the reason why a bicycle with the motor placed in the hind wheel, or over the front wheel, is more liable to slide slip than one with the motor placed between the wheels,

is that when the motor is placed between the wheels it is nearer the centre of gravity of the machine and rider, and consequently more of the bumping of the motor (which has a tendency to cause the tyres to leave the ground) is absorbed by the machine and rider than would be the case with the engine in or over one of the wheels. When the motor is placed over the front wheel its inertia aīects the steering on account of its being placed considerably in advance of the steering centre.

Yours faithfully, JBDUNLOP, JUNR."

The 'JB' clearly stands for John Boyd. John Boyd Dunlop Snr, who had (re-)invented the pneumatic tyre in 1888 to urgrade JBJnr's strike; if you've been reading this timeline from the start you already know that Robert Thompson had patented a pneumatic tyre in 1845.—Ed

"SIR—IS BELT DRIVING superior to chain driving? I say most emphatically that it is not only not superior, but that it is decidedly inferior if the chain transmission is □ðttedwithagradually engagingclutch. Anyonewho has been riding a belt-driven bicycle about the wet roads this winter must have been disgusted with the wet, □ðabby,dirtystatethe belt has got into from the drippings on to it of the mud from the top of the driving-wheel. Theconsequence is, that the belt stretches and slips, and frequent stoppages are necessary to tighten the □ðlthything,tomake it grip even moderately well. Theresult is the same, no matter whether V-section or round twisted belts are employed. It is not much use loading up your machine with piles of petrol and oil tanks and lubricators, which, the capacity to carry some makers seem to think, is the chief quali□ðcationofa motor bicycle, when the system of drive generally adopted tends to produce the very disadvantage the cart-load of luggage is stated to prevent. After every ride under such conditions, it is a very unpleasant but necessary duty to thoroughly clean the belt, as, in the process of drying, it becomes more or less hard and in□ðexible,andtoapply an oily belt dressing to render it suīiciently supple for use again. Several machines I have tried are □ðttedwithsuch small and ill-shaped driving pulleys, that to obtain a drive even in dry weather, the belt must be tensioned so severely as to produce an appreciable amount of binding in the bearings of both motor and back hub, with the further consequence of increased liability to belt breakage. Then again, the loss of power in belt-driving any machinery in consequence of the inevitable slip of even well adjusted belts under varying loads has been estimated and expressedin formula by engineering experts and in respect to motor bicycles. I am convinced from personal experience that a 1½hp motor with a chain transmission gives a more powerful eīective force of propulsion than a 1¾hp motor with belt transmission. Belts have been all but discarded on even the lightest voiturettes in favour of direct drive, and I have no doubt that after trial during the coming season they will be discarded on motor bicycles also. I have seen from time to time theoretical objections advanced against chain transmission for motor bicycles, but they are not borne out in the practical experience I have had on the chain and clutch transmission machine I am now riding."

Yours truly, 'DIRECT DRIVE'."

"SIR,—I HAVE BEEN a bicyclist for over thirty years, having commenced with a bone-shaker, the greater part of which I made myself. Next, I went in for the high machines, manufactured by the Coventry Machinists' Co, then for safeties made by diīerent □ðrms—homeandforeign—then settled down to the Humber machines, which I have been riding for many years, and last year purchased one of Bayliss, Thomas and Co's Excelsior motor bicycles, and upon this machine I have done over 2,000 miles, experiencing the following breakdowns and minor troubles: 1st breakdown—Keywhich holds pulley on crankshaft gave way, and whether I would or no, the engine became a free one, and I had to pedal home. 2nd—Long screw which passes through edge of □ðywheel,andholds same to crankpin, cut out, and □ðywheelswentadrift in crank

chamber. 3rd—Porcelainof sparking-plug blew out, and unfortunately not having a spare one with me, had to pedal home. 4th—Free-wheelclutch broke when assisting the engineuphill, and as sprocket jammed, had to pedal home. Remedied by replacing broken clutch with an Eadie one, which is all right. Thefollowing are some of the minor troubles I have experienced: 1st—Float in carburetter became detached from wire before I had done 100 miles. Since then I have to take 'soundings' to □ðnddepthofpetrol. I now always take the precaution before starting to see that tank is full, and that there is a small quantity of petrol in carburetter, leaving valve between tank and carburetter slightly open, which allows petrol to drop into carburetter, and when running with valve in that position, get very good results—far better than when following the directions given by the makers. 2nd—Saggingof tank and carburetter in consequence of defective arrangementfor holding same to top tube of frame. 3rd—Belt constantly coming oī. Remedy this be putting guard over it. 4th—Groove in engine pulley wearing smooth, and, as a consequence, belt slipping. To prevent this roughed groove out twice. 5th—Lubricating oil leaking from crank chamber at each end of crank shaft, worse at pulley end; there the oil comes out at bearing, gets on to pulley, thence to belt and clothes, causing slipping of belt and damage to clothes. 6th—Carburetter leaking at wash-out plug; could not stop this till I soldered in old plug, and drilled a small hole in its centre and put smaller plug therein. Find rim brakes a great nuisance and very much in the way when trying to mend tubes, or covers. and in cases of puncture, of which I have had □ðveinbackwheel. There is very little vibration in this machine; can ride it easily 'hands oī'—not as liable to slip as an ordinary bicycle. Have had no trouble whatever with electrical parts. One pint of petrol is suīicient for a run of 18 to 20 miles. Could get speed of 20 miles an hour on a good road. Have had some experience of a Werner (1901 pattern). A fast machine with a very good engine and plenty of power, but found there was too much vibration for my fancy. Also have had experience of the Singer motor bicycle, which is a well made and reliable machine throughout, and will climb almost any hill. I certainly would not have the □ðy-wheelout-sidethe crank chamber, unless I wished to be anointed; for even in the very best make of engine, which class of engine is very scarce, the lubricant will in time □ðnd its way out at the bearing of the crank shaft and when it reaches the circumference of the large □ðy-wheelwillbethrown oī on to your clothes. Theoil will also get on to the belt and cause slipping. With regard to price I don't think a really good sound bicycle, with a motor which would run for three or four seasons without repairing, could be purchased for less than £45.
Yours &c, HL MEADOWS."

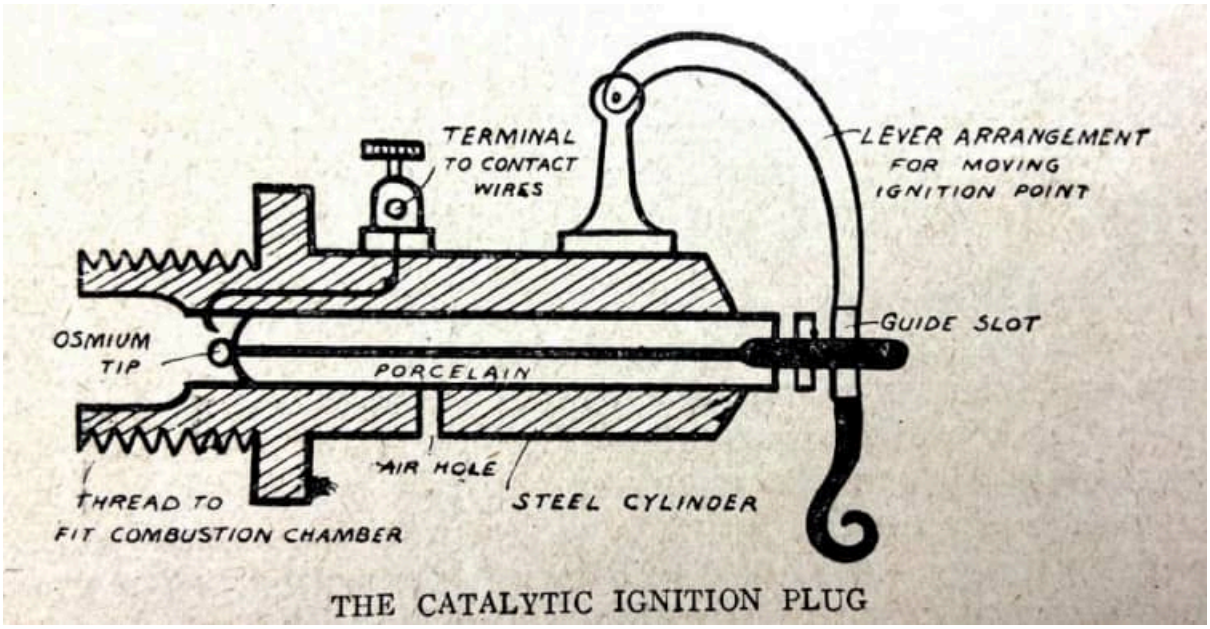
MOTORCYCLINGALSOpublished its □ðrstreaderquery: "If you have a Query Column in Motor Cycling, please insert this one: Which is the most reliable for a Motor Safety, a pulveriser or surface carburetter?
WWE"

INVENTION.

"In this column we shall describe and illustrate the very latest improvements in Motors and Motor Cycles."

"WHAT PROMISESTOCREATEastirin the motor world is the invention of the 'Catalytic ignition plug' by Monsieur Wydts, a French electrician. Theprinciple upon which it acts is a most interesting one, and is that known as 'catalytic action' or the property which certain rare metals of the platinum group possess of becoming incandescent or white hot when brought into the presence of gases rich in hydrogen—such as the hydrocarbon mixture that drives the petrol

motor—it is necessary that the metal be in a state of extremely □ðnedivision,or,as it is termed, in the 'spongy' state, for this action to take place. Thename of the metal used is osmium a silvery metal of great rarity. Thishas been applied in a practical form and extensive experiments by the inventor have proved its success under the most adverse conditions; the aid of an electric current, however,is required as part of the system just to give,as it were, an initial or momentary heating to the small pellet of osmium; this only requires a very small dry battery and a simple circuit of one wire and a switch. Thedetails of the plug are shown in the diagram, in which we have a steel cylinder which screws into the combustion chamber; this cylinder contains a porcelain insulator carrying a wire, at the end being the osmium pellet. This insulating sleeve is arranged to slide in the cylinder, to allow of the ignition being advanced or retarded; the electric circuit is made by a small contact inside the plug; switching the current on raises the temperature of the osmium to 50°C, on coming in contact with the gas it immediately becomes white hot and □ðresthegases;theignition is stopped by drawing the osmium past a small hole and admitting the air to it."

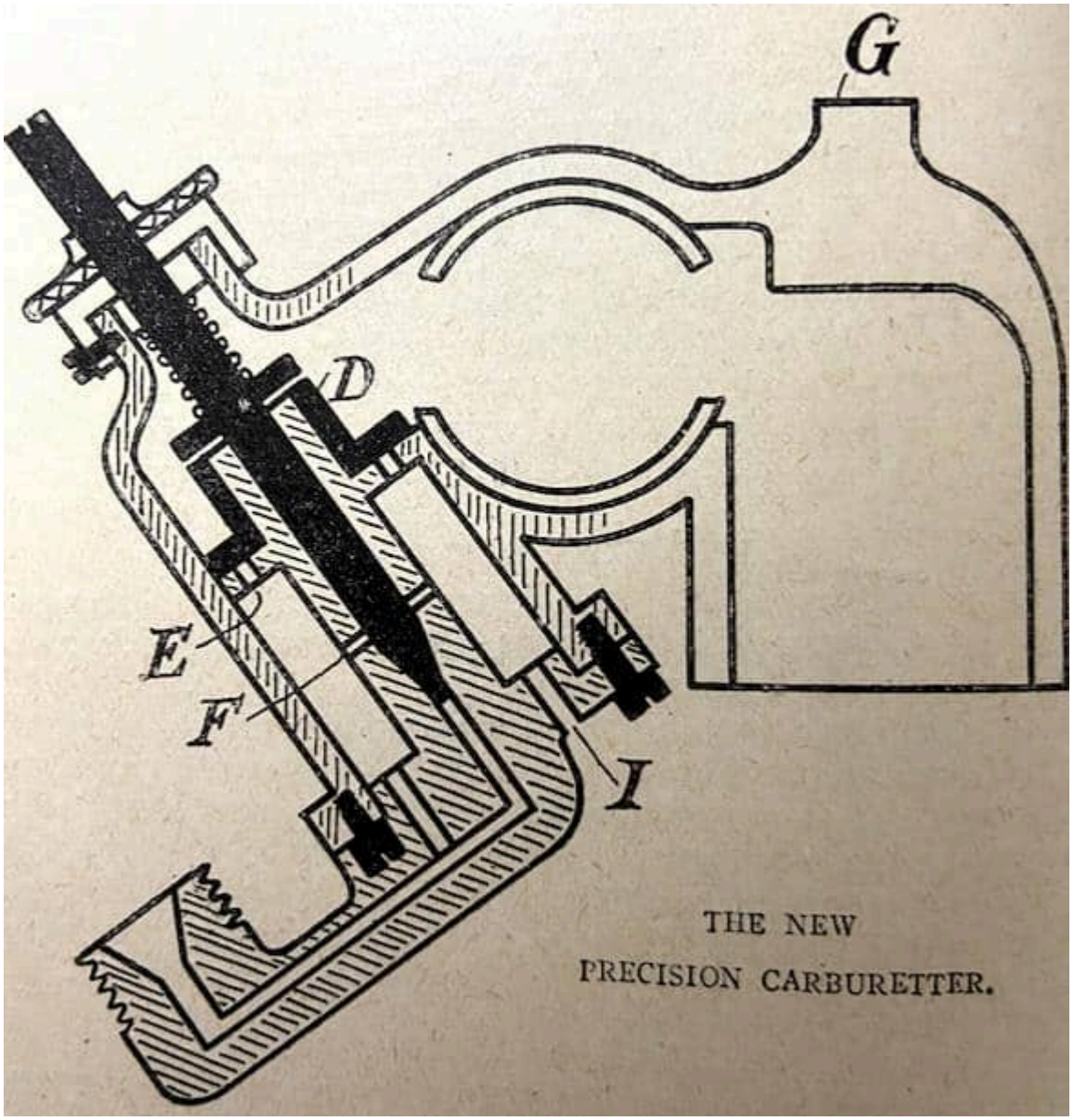


THE CATALYTIC IGNITION PLUG

THEWHIRLWINDMOTORCYCLEisa good example of a British-made machine throughout, and is manufactured by the Dorman EngineeringCo of Northampton, with a cylinder 2½in. x 2½in, and guaranteedsuīiciently powerful to carry a 12-stone rider up any hill. In the details of its construction we note several good points, such as the making of the □ðywheelinonepiece with its axle and crank, the latter being made by male and female tapers accurately turned, the whole being coupled together by ⅜ in bolts and nut, this arrangement permitting the gear wheels to be closely stowed away and thereby reducing width of the case. Thecarburetter is of the spray type and works automatically, the ignition being done by accumulators □ðttedinthe usual manner within a case with the petrol tank, the induction coil being strapped on to the front of this case. A clamping bridge and dome □ðttedoverthevalves,with a pinching pin for holding it in position, aīords a ready means for the removal and cleaning of the valves. The arrangement for regulation is by a switch attached to the left handle and an exhaust lifter attached to the right, an arrangement which gives complete and immediate control over the machine. Theprice quoted is £40, the frames being stocked at 24in and 26in, but can be made to suit the requirements of riders. TheCompany also supply the motor specially designed to suit BSAmotor □ðttings,orany cycle with a 5½in tread."

“WE HAVELATELYmadean examination of the belt-driven motor cycle made by the Precision Motor Co of Northampton, the whole of which has been made in Englandand which appeals to us forcibly as being a very neat and serviceable machine. Theengine, which is of the diagonal type, is □ðttedwithintwo parallel down tubes forming the diagonals of the frame, the upper of which runs from the top of the head to the bottom bracket, and the lower terminates about two-thirds of the way down into a crutch which receives the case of the engine A lug is □ðxedtothe underside of the bottom bracket and aīords a further steadiment to the engine,so that with the removal of two bolts, the enginecan be taken away for repairs. Thereare many special points in the construction, design and the carrying out of the details, and amongst them the following are worthy of note: Each □ðywheelisofcast steel with its own axle, and one has the crank pin also cast on it, and turning this to a taper, it □ðtsintotheother wheel and is secured to it by a nut in the usual way, thus holding the whole very rigid. Thegear wheels for the valve motion also cast solid and the teeth machine cut, thus ensuring strength with lightness. Thecase is of aluminium, the two halves being spigotted together, no strain being thrown on the bolts, and the alignment of the bearings is assured whenever the case is separated for cleaning, etc. Phosphor bronze is used throughout in the bearings, all of which are of ample length. Thesparking is by means of accumulators contained in a combined tank fastened to the top rail of the machine, and which has enclosed within the same case, petrol tank, tool box and lubricating oil, the induction coil being snugly packed away under the saddle. Thecarburetter is of the pulverising type, and is of simple construction. Air, which has been warmed by contact with the exhaust box, passesthrough the holes marked I in the illustration, and with the suction eīort of the engine lifts the diaphragm D, which in turn raises the needle valve, admitting petrol, which, passing through some small holes F in the case, is sprayed into the outer chamber, and meeting the warm air mixes with it, and passesthrough the holes E, covered by the diaphragm, into the cylinder. Byuncoupling the petrol supply pipe and a pinching pin at G the whole box can be removed for cleaning the valves. Thecontrolling is all done with one hand, by twisting one of the handles on the handle bar*. An exhaust lifter is □ðttedforwheelingthe machine, a sight feeder lubricator, Morrow free-wheel and back pedalling brake, front rim brake, complete a handy and neat machine.”

*As far as I know this is the □ðrstmentionof a twistgrip—Ed.

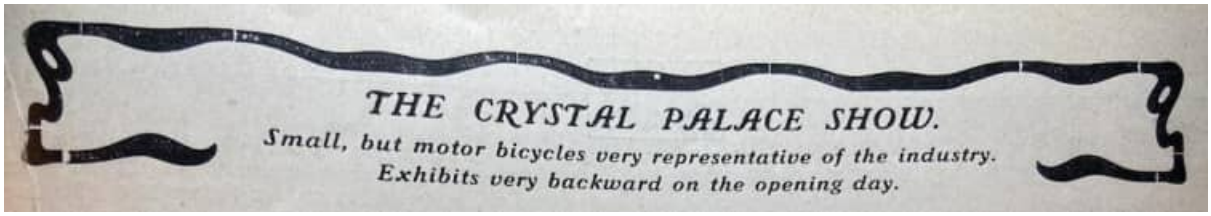


“THE DREAMOFTHECYCLISTfora long time past has been to create some sort of standard for the various parts of the cycle; and good work is being done by the Cycle Engineers’Institute in endeavouringto bring somewhat into line the disparity that exists between the various bolts, nuts and their corresponding threads…Here,at the commencement of comparatively a new industry, the chance is unique for accomplishing such a state of standardization amongst the various parts of the motor engine, its □ðttingsandsoforth…Again, with such a □ðttingasthe sparking plug. We all know that this is a source so far of a good deal of trouble…Itwill not be is diīicult matter for all makersto tap the sizeof the hole for the plug of a standard diameter with a corresponding number of threads per inch, say, either of the gas thread standard of usual commercial pattern, or else to adopt the □ðnethreadusedby brass workers and known as the brass thread…Thethicknessof the metal where the sparking plug is inserted would likewise be a boon as well as a uniformity in making the length of the □ðttingthesameby all makers…The question of the sizeof the spannersis also one worthy of attention, and the adoption of ring spanners in the place of open-jawed one would save many a barked □ðngerandmanyasmall swear.”

“THE WELL-KNOWN VETERAN roadrider and record breaker GP Mills has interested himself in Motor Cycles for a long time: ‘That motor bicycling has come to stay I think there is no doubt. The advantages of the motor bicycle over the motor tricycle are practically those of the ordinary bicycle over the ordinary tricycle. They are: single track, with the ability to pick one’s path on bad roads, less vibration and ease of storage. Moreover, the motor bicycle is more eﬃcient than the tricycle (an engine of a given power attaining more speed on the bicycle than on the tricycle). A motor bicycle, moreover, can be made more cheaply than a motor tricycle, a consideration which will appeal to many…Motorbicycles have much improved lately, but the perfect motor bicycle has yet to he built and probably it is impossible at the present time to forecast what is wanted, for as we increase in knowledge, additions will he required to what we now think would be perfection. Again, that which would be perfection in one man’s estimation might not suit another. However there are several points on which most motor bicyclists agree. Given petrol as the propelling agent and leaving the vexed question of the position of the motor alone for the time being, the following appears to me to be required: A well-built motor of at least 1¾bhp with ample bearing surfaces so as to ensure long life. A two-speed gear and a free engine, a result preferably obtained by a friction clutch, the high speed being the normal gear and the low-speed bringing the gear into play for hill work. A better means of power transmission. The belt at present used, although it has many advantages, will, I think, eventually give way to some form of chain drive, with either a spring pulley or a friction clutch…A valve lifter is undoubtedly far ahead of the old compression tap, and should be, I think, arranged to cut oﬀ the electric current…and should in my opinion cut oﬀ the current before raising the valve, as it is sometimes very useful to use the compression of the engine in lieu of a brake…With accumulator and coil, wiring should he as short as possible, but I think some form of magneto ignition will possibly eventually oust the accumulator, chie□ðyowingtothe re-charging question. Spray carburetters appear to be favoured by several makers, though personally I lean towards a wick carburetter, having obtained most excellent results with this type in all sorts of weather…The tank should carry petrol for at least 150 miles and more if possible and automatic lubrication is wanted. All levers should be actuated from the handlebar and should be as few as possible, as nervous riders do not care to leave go one hand in an emergency, and dive for a tap on the top bar of the frame (a combination of switch valve lifter and brake might be made from one lever)…It is probable that as we progress the need for pedalling, except at starting, will be done away with…In conclusion, I would say that those who take up motor cycling will □ðndit, as I have done, a most fascinating pastime and one well worthy of attention.”

“THE MAN WHO IS about to become a motor cyclist will naturally ask how he is to set about it. The □ðrstthingtodo after selecting the machine, but before ordering it, is to deliberate upon the place in which to keep it. It must not be forgotten that a machine weighing approximately three-quarters of a hundredweight is not to be handled as easily as one is wont to handle an ordinary cycle. To carry a motor cycle up and down a □ðightofstepsor stairs means a two-handed job, whilst the vehicle is not to be easily conjured round awkward corners. In the event of the accommodation at home being unsuitable it can usually be obtained at an adjacent livery stable at about a shilling a week. An important matter is a stand upon which to rest the rear portion of the machine, and this stand should be suﬃciently substantial to permit the rider to sit on the machine and run the engine. Such a stand is to be obtained at any dealers or it can readily be made by anyone fond of carpentering. Then an order should be given for a two-gallon can of petrol; the price for this is from 1s to 1s 6d. a gallon with a deposit of 2s 8d on the can. It must not be forgotten that petrol, being highly volatile, is very in□ðammableandshouldtherefore be kept away from all lights. Another purchase will be a quart tin of engine oil—either Price’s

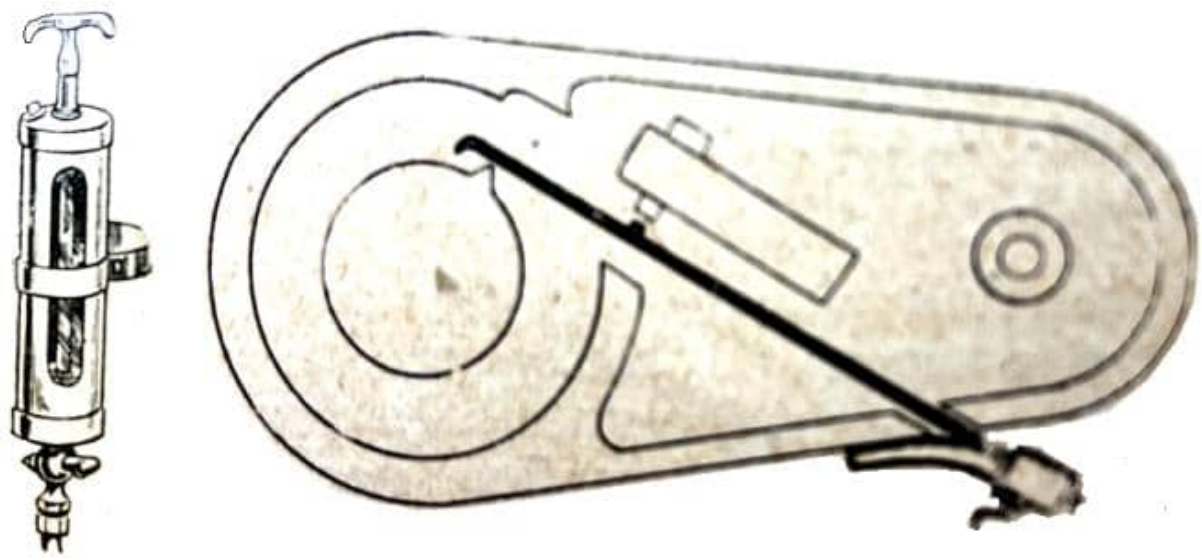
Motorine, Wells-Lucas' 'Superb' Motor Oil, or United Motor Industries D Oil…Thequestion of clothing suitable for wear when riding a motor bicycle is rather too important a subject to be dealt with in the small space at my disposal. Moreover, our tailors and out□ðttershave,sofar, given little or no thought to this matter, preferring, may be, to wait until we ourselves know more exactly what our requirements are. Themain diīiculty, especially during the present kind of weather, is to keep warm, and I must confess that so far I have not succeeded in hitting upon the right thing, though one's cycling experience helps one to attain that end more easily than one otherwise would.
CYCLOMOT."


THE CRYSTAL PALACE SHOW.
Small, but motor bicycles very representative of the industry.
Exhibits very backward on the opening day.

THEMOTORCARAND MOTORCYCLESHOW organised by Mr FW Baily and his confreres opened on Friday last…Theshow is small. One could walk the whole length of the gangwaysin a quarter of an hour, but the motor cyclist could pro□ðtablyandinterestedlyspend two or three hours there, and if a study of the cars were to be added, there would be a lengthy day's work before the spectator…theshow…isat once strong and attractive in the motor cycle section. The only machines which are in anyway notable, or which have any vogue, that were absent were the Simms, the Hewetson and the Singer.Thetendency in motor cycles seems to be undoubtedly towards the vertical engine.Eīicient lubrication, capable of being eīected from the saddle, is being generallyprovided for, whilst many attempts to replace the surface carburetter with some form of pulveriser are evident. Whether an eīicient and reliable spray or □ðoatfeedcarburetter,suitable to the conditions obtaining on the cycle, will be produced, remains yet to be proved. Outside □ðywheelsappearin a few instances, but the □ðrstthoughtis that there is distinct loss of compactness, whilst the need is created for a guardingof the rider's clothes from contact with the rapidly revolvingwheel. Eīorts are being made to master chain driving; whether we shall be more successful in this matter than our neighbours on the Continent have been is a question, but if success be not ultimately obtained it will at least not be for want of striving. But whether the chain takes □ðrstplaceornot as a means of transmission, some improvement is necessaryto overcome slipping of the belt on the engine pulley. We observedthat the public are becoming much better informed upon motor matters. Therewas an absence of the silly question such as 'What is that thing for?' Interrogations rather took the form of 'Have you an exhaust valve lifter?' and 'Do you not think that the spray carburetter is more liable to weather changesthan the surface kind?'"

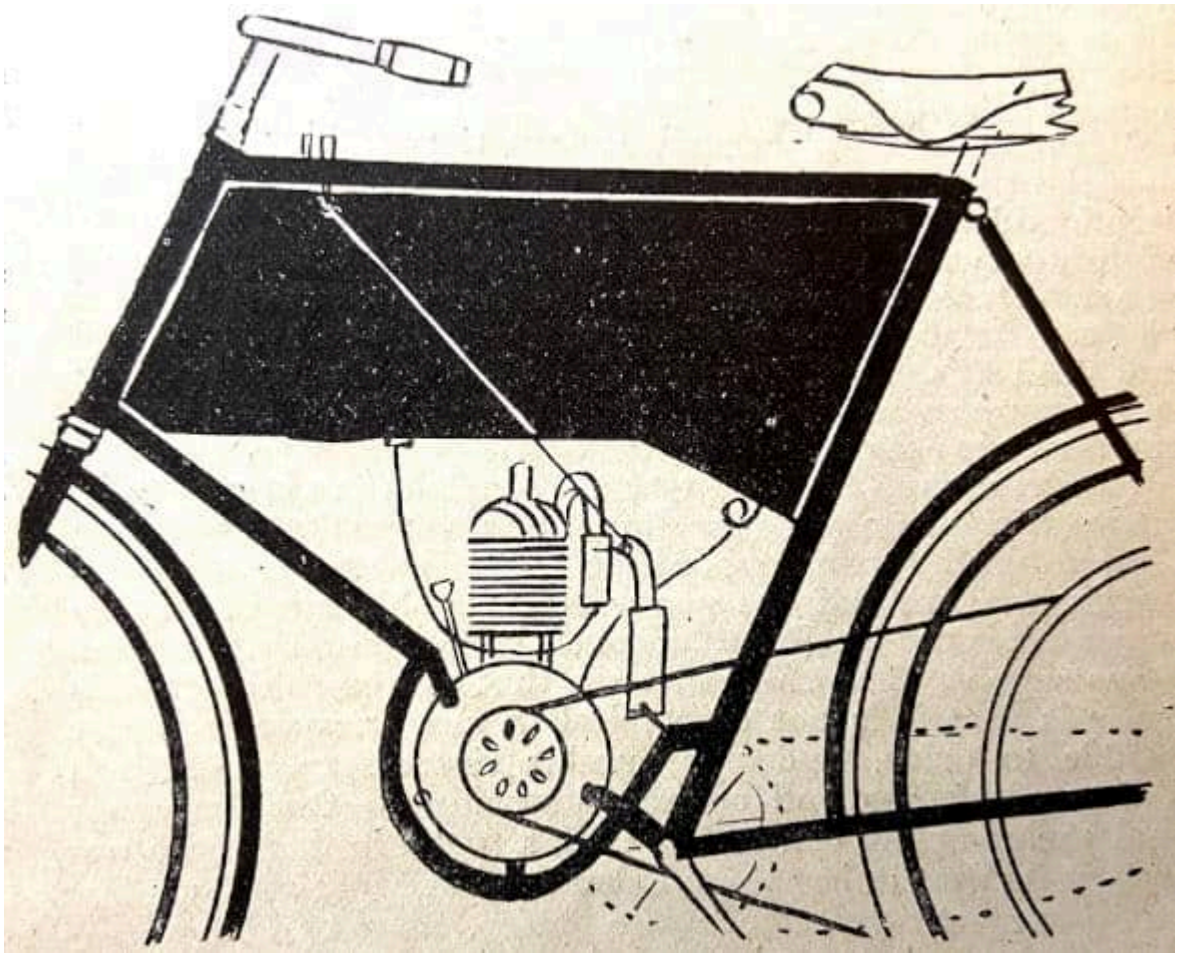
TheAriel Co. Made on exactly the same lines as the well known Ariel quad, it nevertheless displays many important points, not so much in the engine as in several important items. The back driver is not attached to the spokes of the wheel, but is slung from the rim, so that it can be sure of being absolutely true, an advantage which one will speedily recognise when the wheel which is attached to the spokes so speedily gets out of truth and loss of power ensues. A very novel and simple combined oil tank and pump is attached to the frame. Theaction of pulling up the spindle is to draw in a charge of oil whilst the downward pressure forces it into the crank case. Thegeneral □ðnishistheAriel's own, and nothing is wanting to render the design more attractive than to say it is an Ariel. Theprice is £45. An Ariel quad is also exhibited, price £150.

Dan Albone is showing a new type of machine suitable for ladies and elderly gentlemen, strong and of the usual good □ðnish, □ðttedwith1½hpMinerva engine, driving by hide rope well



L-R:"The Ariel sight feed indicator. ThePhoenixtrembler adjustment."

protected to prevent catching the skirts. All levers are well placed and the whole is under thorough control; two brakes are □ðttedbackandfront, both on the rims, and Brookes' saddle with back support. A well-designed and thought-out machine, and priced at £47. **Farman Automobile Agency**—Inthis cycle the engine is □ðttednearlyatthe top of the bottom diagonal and rather to the oīside, with the □ðy-wheelcounterbalancingit on the near side. Theengine is 1¼hp and has been made so as to □ðtintoanygood roadster machine. Thedrive is by a hide rope over a jockey pulley which can be adjusted if necessary, spray carburetter, and a waterproof induction coil so preventingthe likelihood of trouble from rain. Thelubrication is automatic and the complete machine is listed at £45. Theyalso show a □ðneassortmentoflamps and motor accessories. **The East Riding Cycle and Motor Co** show a novel departure in □ðttingtheengine inside a loop formed in the bottom diagonal, the enginebeing vertically placed. Thedrive is by belting. Spraycarburetter. Tanks for storageof petrol equal to 130-140miles, together with two accumulators, induction coil, and lubrication oil being contained in one case. A sight-feed lubricator is □ðttedforthecase and an extra supply to the bearings. Thesilencer is of the triple type, so that little noise can be heard from the exhaust. Two levers perform the whole of the movements for regulation of speed; that on the right.is the advance sparking and exhaust .lifter, whilst that on the left is the mixer. Two brakes are □ðtted.Weillustratethe latest development in



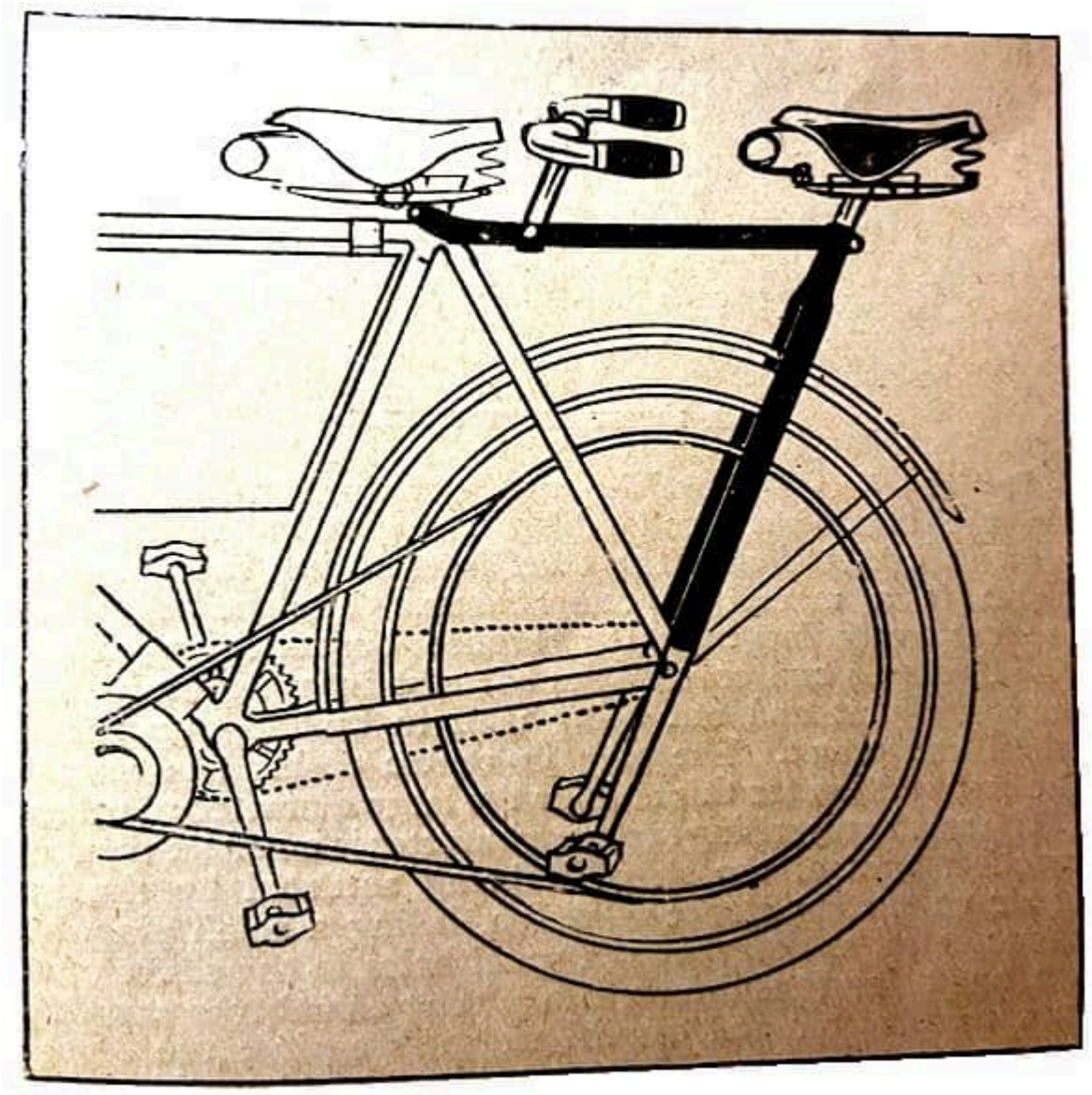
“The ‘Vipen’ motor bicycle.”

connection with the **Quadrant** motor bicycle, and judging by the interest that has been taken in the innovation, the □ðrmislikelyto receive a great amount of publicity and most probably increased trade in consequence. Thereader at a glance will see that abolishing the compression tap and advance spark lever, together with the objectionable and unsightly wiring, has done much to improve the appearance of the bicycle. Brie□ðy,theentiremanipulation of the engine is done by one lever. Theair lever, when once set, is seldom interfered with for hours, and even in this connection, the management of the Quadrant Company have, after experiment, found out the best possible mixtures for the averageday and mark the top of the air lever to correspond with the gas supply. When the lever—bythat we mean the combination lever—is right back, everything, gas, compression and electricity is oī, and the exhaust valve is open. On pushing the lever slightly forward the current is switched on by the entrance of a small tang on the lower side of the lever between two copper plates. As the lever is advanced the exhaust valve closes and until this is done no gas is supplied to the engine. As soon, however, as the valve closes the supply of gas begins and increases according to the position of the lever…A cyclist who is compelled to ride in the traīic of our leading towns will appreciate another important fact in connection with the Quadrant machine. That is that immediately the lever is pulled right

"The Quadrant—controlled by a single lever."

back the machine is simply an ordinary free-wheel bicycle and can be ridden amongst restive horses without creating the least noise. **The Wellington sparking plug** is a specimen of what can be devised by careful thought and complete knowledge of the requirements. It sells at 4s 6d, but its eīiciency renders it well worth the price asked. **Steiner & Co**, of 142, Houndsditch, make an attractive exhibit of cycle and motor horns in a multitudinous variety of patterns. The quality of these goods, as well as of the pumps, lamps, and other motor sundries is unsurpassed, whilst all tastes and pockets are being catered for. **New Hudson**—Harry Jones, 148, Gray's Inn Road, the sole London agent, is showing the New Hudson motor bicycle, □õtted with 1½ to 1 ¾hp engine; surface carburetter, accumulator, petrol and lubricating oil being kept in one case. The driving is by a hide rope. Two brakes, back Bowden and front brake made by the New Hudson Co, and named after them being □õttedtothefront rim. The lubrication is by a pump. The machine has a very neat appearance, with the supply tank painted aluminium

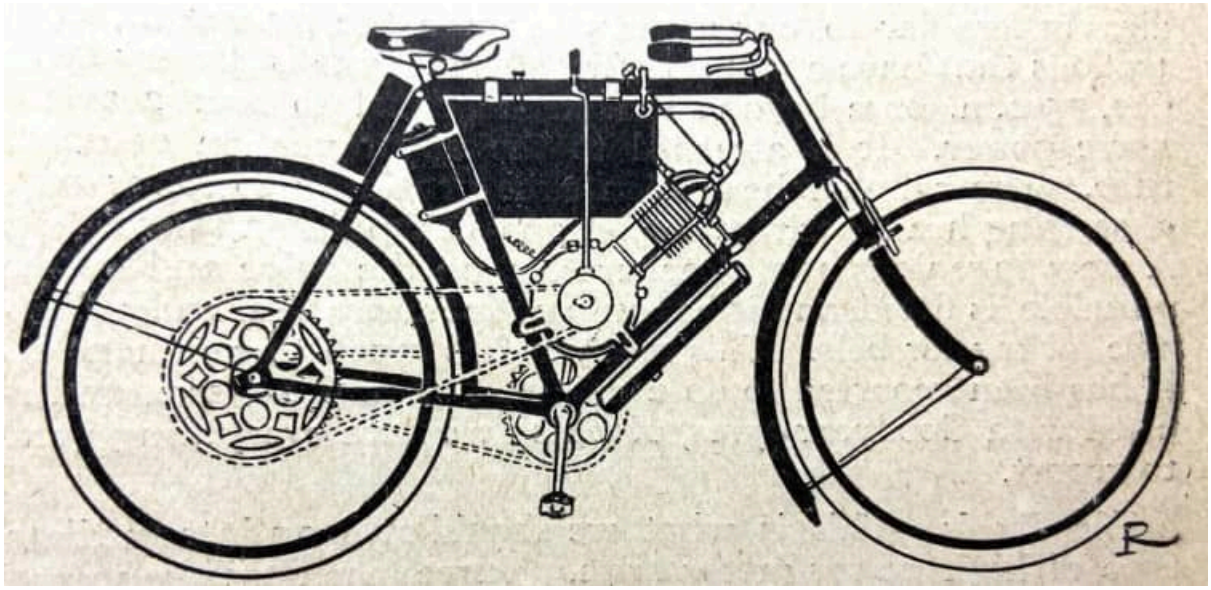
colour. **Werners**—Thenew1902 pattern sold in this country by Messrs Werner Motors, of Woodstock Street, Oxford Street, W are shown in the bay. TheEnglish-built Werner is a new introduction, selling at £50, having two brakes, and the workmanship being of the highest quality. TheFrench-made machines are now □ðttedwiththeMorrow hub and a substantial front rim brake.Thecoil is of a new pattern with no visible terminals and lubrication of the engine from the saddle is now provided for. Themethod is absolutely reliable and it is not possible to miss the charge of oil. Thecontact breaker is new, the cam having no notches and no projections, but having instead a □ðatonit;the trembler blade is also minus projections. The result is an excellent trembling contact. TheWernerwith its vertical engine, large comfortable tyres, wide □ðatbandanditsmany details that make for simplicity and eīiciency, is a machine that will prove immensely popular during the coming season. **Phoenix**motor bicycles make an exceptionally interesting display because JVan Hooydonk has made a careful study, not only of the requirements of the motor cyclist, but of the possibilities of the motor itself and has adapted the latter to the former. We have already given many details of the Phoenix, notably the spare petrol tank, the eīicient system of lubrication, the exhaust valve lifter, and a clearance from the handlebar and frame of all wires. Thecontact breaker is now an extension of the lever which lifts the exhaust valve rod and is operated by the lever on the handlebar. Recent improvements consist of the adoption of long levers to the gas and mixture taps to secure □ðneadjustment,a simple clamp for the trembler blade so that this latter can now be easily adjusted and readily renewed, and a simple device for preventing the oil from splashing out of the crank chamber through the pressure vent. Thespring head and spring seat pillar have largely added to the comfort of the machine. It may be said of the Phoenixthat good points can be found on every inch of it. **TheHolden** is the only motor made with four cylinders entirely water cooled. It is a slow-speed engine of 3hp, and reliability has been consistently aimed at. Thecarburetter is of the surface type and lubrication is automatically performed when engine is running, ceasing as the latter stops. Theengine drives on to a wheel, 16 inches in diameter, but despite the small size, no discomfort is caused to the rider sitting midway between the wheels. Complete control is obtained without the need for moving the hands from the handlebar, and other troubles such as overheating, faultiness at plug and so forth have been entirely prevented. Theengine develops ample power to carry the rider to the top of any hill without any demand for assistance from him. A careful study of the Holden soon convinces one that worry and petty annoyance in the management of it have been almost abolished. **TheFN Bicycle** is also shown by this company. This engine is made by the Fabrique Nationale, Herstal, Liege. We can state that the turn-out of this engine is worthy of the name of that celebrated engineering works. Theengine is of the outside □ðy-wheeltype,thelatter being on one side of a large central bearing balanced by the cylinder and single disc crank on the other. Thisinsures, perhaps, the lightest construction possible for small engines. It is securely attached to down seat tube. Transmission is by belt. Thecarburetter is neatly arranged under the top horizontal tube. This motor should appeal to the lover of the neat and compact; it is of 1¾



"The 'Minerva' tandem attachment."

reputed horse power. **EM Bowden's Patents**—Theexhibit made by this company is bound to have an immense in□ðuenceonthe controlling □ðttingsofmotor bicycles, in much the same manner that the Bowden wire for brakes has made its mark for simplicity. Minerva-pattern motor exhibited has all its ignition, carburetter, exhaust valve lifter, and last, but not least, the friction clutch by which the chain drive is conveyed from motor to driving wheel worked by levers and wires on the Bowden principle. The Bowden friction clutch enables a ½in pitch chain to be Used as a form of transmission instead of the belt and yet provides a means whereby a certain amount of slip can take place when the jerks are apt to occur. The clutch is □ðttedupontheback wheel axle, and when thrown out of gear—fordescending hills, &c—the chain is at rest. **D Citroen & Co**—Thewell-known 'Minerva' motor, □ðttedtovarious frames for riders of both sexes. All the latest improvements dealt with already in part when describing other stands where Minerva motors are □ðtted, arefound. Those who wish to become thoroughly au fait with the engine and its parts should spend some time in examining the sections shown. We illustrate the new Minerva tandem attachment. This device can be □ðttedonto any motor bicycle in a few minutes, the uprights springing on to the rear axle and being locked by the nuts, whilst the

saddle bolt holds the forward end. The attachment should, prove very popular. **Princeps Autocar Co**, besides showing a smart 4hp voiturette, are also exhibiting a chain driven



"The 'Princeps' motor bicycle."

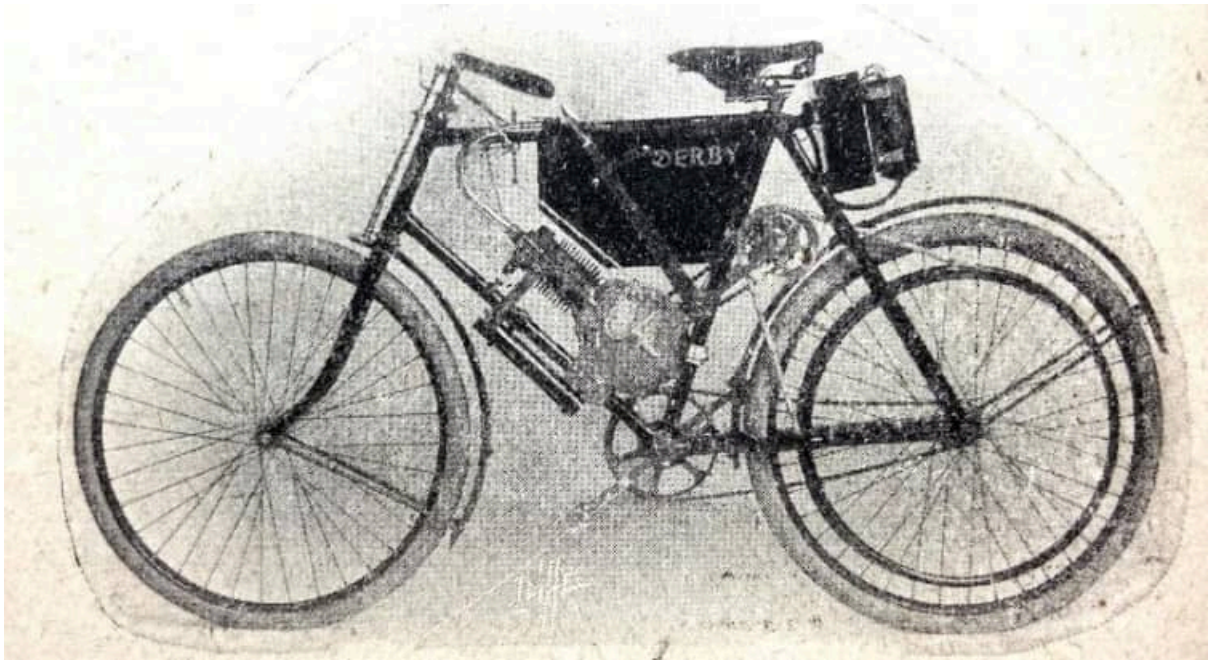
motor bicycle, with diagonal engine □ðtted within the frame, sight feed lubricator, either spray or surface carburetter can be □ðtted. The, front brake on □ðrst being applied breaks the electric circuit, and with further application the brake acts on the front rim The engine is 1¾hp and is free running, the engagement being by a gradual clutch. The accumulators are for 20 amperes hours and the petrol capacity for 120 miles. The price listed is £45 net. **Alfred Dunhill** is making a most eīective display of garments for owners of cars. **W King & Co**, Cambridge, exhibits one of the highest-powered motor bicycles in the show, viz, a 2¾ genuine De Dion motor, which is thoroughly well attached behind the bottom bracket; the bottom of crank case rests on lower back fork stays. A large central case contains surface carburetter, coil, batteries and lubricant. The □ðnish of these machines is admirable and they should appeal strongly to 'speed merchants'. **S Smith & Son** make a most attractive exhibit of their justly celebrated watches and chronometers. So far, the needs of those owning cars have been catered for in the direction of suitable timepieces and speed indicators, but now attention is also to be paid to motor cyclists and their requirements. A new chronograph with a large □ðying second hand to facilitate the calculation of speed between milestones and so forth is already on the market, whilst a special speed indicator at a moderate price will be ready for the cyclist in the course of a few weeks. **Excelsior Motor Bicycles**, amongst the very earliest of the popular pattern to be put on the market, are now enjoying a well-deserved popularity. The samples on view exhibit many improvements, such as the new anti-vibrating spring head, an exhaust valve lift and other requirements. The lady's bicycle is well designed to give ample dress clearance, and the rider and her costume are well guarded against mishaps. The Excelsior 2¾hp motor bicycle is a speedy vehicle out of which forty miles an hour has been obtained. The engine is air cooled and entirely English made. It is □ðtted with exhaust valve lifter, substantial contact breaker, large exhaust pipes and an excellent system of gravity feed lubrication. The engine also has bearings of an ample size. The frame of the cycle is extended so as to give room for the larger engine; a larger wheel base is thus given. The machine has been put to its paces on the track, and has proved fast and satisfactory. For hauling a trailer ample power is provided. Excelsiors are running in the grounds, and create a good impression. **CR Base** has laid himself out specially to cater for cyclists, motor cyclists, and owners of cars in the matter of tailoring and out□ðtting. His

premises at 309 High Holborn are very central, and he is equipped for rapid execution of orders. McCurd's instantaneous motor bicycle supports are devices which will prove an inestimable boon to bicyclists and tricyclists. The support for the three-wheeler was shown at the Stanley. That for motor bicycles is shown at the Palace for the □ðrsttime;it consists of two pairs of collapsible legs, which hang from the chain stays, the idea being to leave them as a permanent attachment so that roadside repairs can readily be undertaken. Mr McCurd, of 21, Clapton Square, NE, will send full particulars on application. **Davis Allen & Co—TheMitchell**—This machine is perhaps already familiar to our readers through the numerous illustrations that have appeared of it. The engine is of very large size, 75mm bore by 90mm stroke, equal to over 2 actual horse power. It is attached to the upper portion of down tube. The cylinder head is in close proximity to lower part of steering head, perhaps the best possible position for cooling. A very ingenious spray carburetter, on the valve and needle principle, is □ðtted, and it has automatic lubrication, and adjustable jockey for belt.

“The portable jack shown in action.”

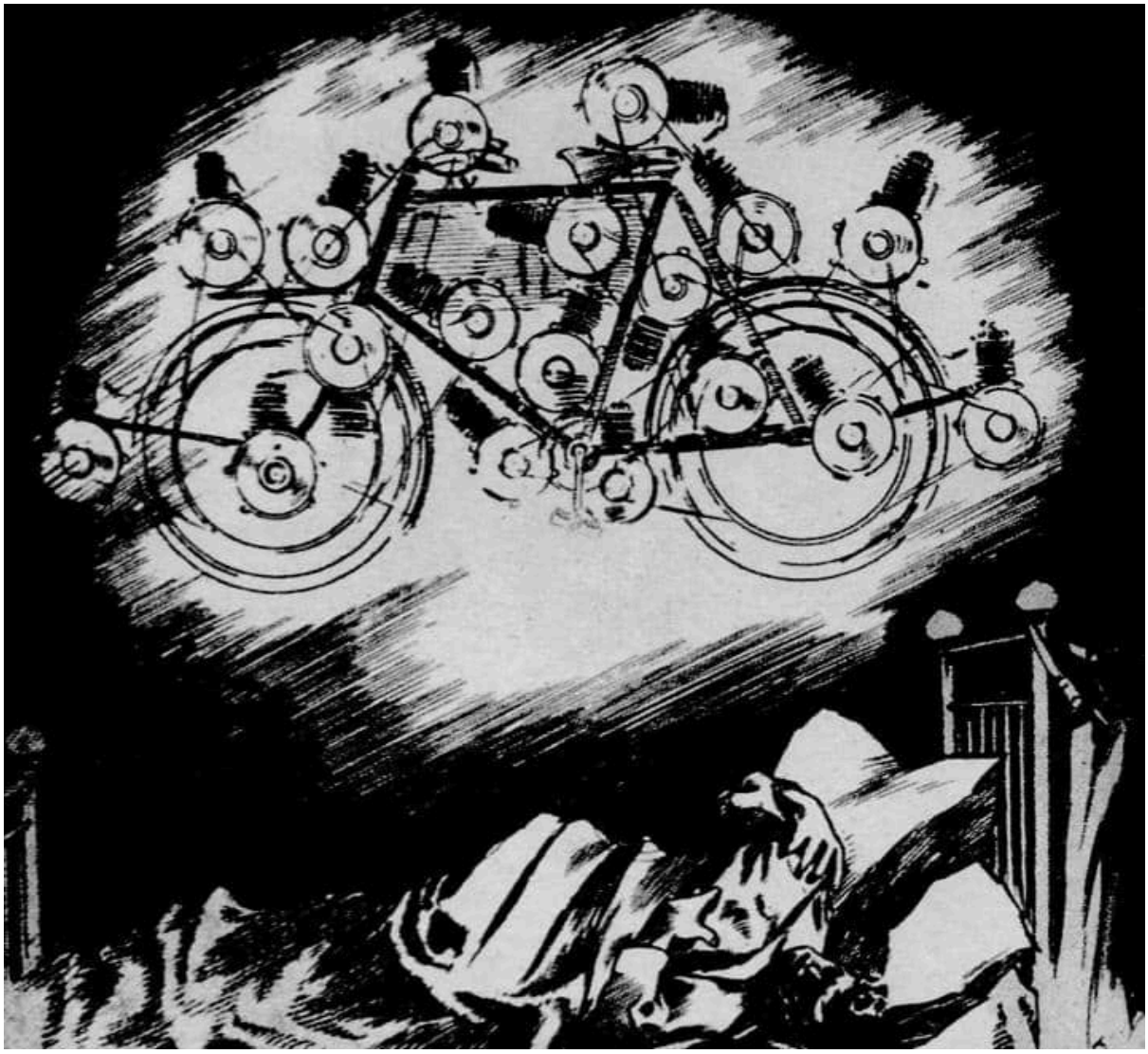
This machine has much to commend it. It has been reported to do a mile in 1min. 6⅖sec, and is ðttedwithGoodyear tyres, of which we have everything good to report. **The Eagle**—Thisis what we should style an intermediate type of high-power motor cycle. Threemachines are shown up to 8hp (genuine De Dion). The ðrstthingto strike the observer’s eye is that a single driving wheel is used, Olympia Tandemfashion. Thisis chain driven, **Renolds’** constant-pitch silent chains being used. Twospeeds are provided by an ingenious system. Thetwo chains on either side of driving wheel are geared, one for high and one for low speeds. Thesprockets actuating these are ðttedonasecondary shaft between engine and back wheel. Thesesprockets have internal friction clutches, so that either can be put in by means of a simple sliding cam and clutch actuated by a lever on left of driver. When the lever is in mid position the engine is freed from transmission and can be then easily adjusted before starting; on a long down gradethe cycle can be allowed to run freely. **The Rex**—Thiscompanyshows three bicycles and two light cars. Of

the bicycles, two are of the older pattern with the motor inclined. The 1¾hp engine appears to he a thoroughly well designed and manufactured piece of work. The carburetter of the surface type is of large capacity and easy manipulation. Only one handle controls the speed, starting, &c. The cooling rings are square in shape, and of large surface—a strong point—and the plug paced in the best possible position for same, viz, centre of cylinder—is used. A combined current interrupter and exhaust valve lift is □ðttedandthe frame is of excellent □ðnishandthe motor attachment of the most thorough description. The new pattern will create widespread interest. The engine and □ðtmentsareofsimilar pattern to the foregoing. A special point is the strengthening of the front fork which is of that double variety known as the cow-catcher pattern ; a large lubricating pump is attached in convenient position, and a Bowden brake to back wheel provides eīicient stopping power. An extremely eīicient silencer or exhaust box compares favourably with the "pepper caster" pattern of recent fashions. The interested reader should make a point of studying this machine most carefully, as it marks a strong step in the gradual perfection which we are attaining in the motor engine. And every item is of entirely English manufacture. **The Primus Bicycle** motor is of the De Dion type, of 1½hp, and is designed to be □ðttedinfront of the steering head. An ingenious method of altering the gear, by using two rollers of diīerent diameter to drive through, is shown. **Humber**—Broadly speaking, two types are shown. The 'Humber' Minerva appears in two grades at £45 and £55. Believers in the belt drive are catered for in this machine, and a special point is that the brake power is exceptionally strong, a back pedalling pattern being provided in addition to the usual front rim type. The □ðttingsfollowthe usual Minerva lines. The valve lifter, timing and mixture all being manipulated from the handle bar in Beeston pattern, which is also □ðttedwithspringhead front forks. The Humber chain- driven motor bicycle is certainly one of the features of the show. Four Tstays form the down tube from head to bracket; the cylinder is arranged centrally in the same plane with these, the four stays acting and occupying similar positions and functions to the four stays securing engine in air-cooled De Dion engine. **The United Motor Industries**, besides exhibiting a very large stock of all classes of motor accessories and □ðttings, show the **Chapelle** motor bicycle which has the excellent recommendation of being a two-speed one. The engine is a free one, and in descending long hills, with engine thrown out, the economy of petrol must be large. The changing is neatly arranged and can be done whilst riding. Another advantage claimed by this gear is that being able to throw the engine out, the machine can be pedalled at once without having to take the belt oī. It is well made, with vertical engine. The special carburetter gives a constant level for petrol and is automatic in its action. The ignition is by either dry batteries or accumulators, which are □ðttedinaleather case and attached to the frame, The belt is tightened by a lever at the side of machine and is adjustable at the will of the rider. **Derby Motor Bicycles** are now



“The latest ‘Derby’ bicycle.”

shown in three or four diīerent types. As an alternative to the friction transmission, where the driving power is applied to the back wheel by means of a roller running on the tyre, a new pattern is shown where the driving power is applied to the, back wheel by means of a roller running on the tyre, a new pattern is shown where belt driving is utilised. In place of the roller a grooved pulley is used, and this pulley, which carries the belt, can moved nearer to or further from the rear wheel by means of the lever which has always been a feature of the Derby. **Precision Co**— This well-known Northampton □ðrmexhibitfor the □ðrsttime,and their show fully realises our greatest expectations. Thechief interest lies in the motor, which is a marvel of compactness. Thepoints in this are extremely large phosfor bronze bushes to engine axle. The □ðywheelsand crank axles are cast in one piece of steel, only one joint and nut being used in building up the □ðy wheel and crank. Theplug in centre of head is certainly the best position for this and for the large diameter of valves. Thesmall pulverising spray carburetter is amongst the really practical ones of the show, it being actuated by the rush of air on suction stroke of piston, lifting a small pin which allows petrol to □ðowthroughsmallholes in the sleeve of this pin; and being thus drawn into mixing chamber is caught up in current of air and carried violently against the edges of mushroom valve attached to top of petrol pin; this insures its complete pulverisation, and we expect good reports of it.”



"'The best position for the engine!' Agonizing nightmare of Jones after a visit to the Crystal Palace Motor Show."

"THE MOTOR BICYCLE CONTESTS AT THE CRYSTAL PALACE: Even the most optimist member of the Motor Cycling Club hardly dared to hope for bright genial weather for a meeting in February, but such were the conditions under which the sports meeting was held on Saturday last. Particular interest attached itself to these, the □ðrst exclusively motorbicycle race meeting and contests of speed which took place on the track and in the grounds of the Crystal Palace. The Motor Cycling Club, which made its debut on this occasion, and incidentally started motor bicycle races on the track for the coming season, are certainly to be congratulated upon having a □ðne day, a large gathering of spectators, and for providing some interesting sport. The novelty of the racing on the track naturally created some slight confusion among the competitors, one or two having to be disquali□ðed for a breach of the rules forbidding the pushing oī to cross the starting line with both feet, and some question arose na to the genuineness of the declaration

L-R:“A □ðnebignumber.Turning on petrol more. Not graceful but speedy. Rivett retires. Dries does a quick changeof strap during the race. A livener for the oīicials.”

anent horse power; but the rules were laid down explicitly enough, and the matter can be safely left in the hands of the club. A serious complaint arose as to the prevalence of pins in the tyres of machines, several competitors having to stand down owing to this cause. This trouble has been rife through out the week, and if the playful author authors of the ‘joke’ had been found a warm time could have con□ðdentlybeenexpected—and realised. Three events were held on the track, consisting of □ðve-milescratchraces,divided according to horse power—viz, for motors catalogued at 1½hp or under; motors not more than 1½hp and not exceeding 2hp; and for motors at more than 2hp. Pedalling was permitted if desired. The □ðrsteventwasdivided into two heats, E Dries (Derby motor) beating a □ðeldofthree; TB Andre (Derby motor), second—time 10min. 36 sec. The second heat, Tessier (front driving Werner) won, covering the □ðvemilesinthe good time of 9min 18sec. He got away from Dries in the □ðnal,andwoneasily—time, 9min 29⅘sec. Thesecond event was run oī all in one heat, the starters being: HW Stones (Rex 1¾hp), LSWatson (Chapelle 1¾hp), JHDickinson (JD1¾hp), and ETArnott. (Princeps 1¾hp). Watson adopted a funny position, and lost interest before the □ðnish.TheRexled,with the Princeps neck and neck, until the latter had to stop, and the Rex□ðnishedsolus.Time,9min 40sec. Only two

L-R:“Time trials—an awkward corner. Themost trying part of the journey.”

competitors fought out the higher powered event—vizA Westlake (Chapelle 3hp) and H Martin (Excelsior) with 2¾hp De Dion motor. Martin led from start to □ðnish,Westlakegainingslightly towards the end. Pin troubles had aīected the latter’s back tyre. Martin won, in the fastest time of the afternoon, 9min 4⅘sec. Thevenue was then changed from the track to the grounds, where the second portion of the programme, in the form of open speed and hill-climbing contests, was decided. Theselected course, about three quarters of a mile, started from the road at the rear of the track and wound around to the terrace. Sevencompetitors took part in the

event for engines of not more than 1½hp, a very fair proportion of the entries. E Dries on his Derby had trouble with his belt en route and had to retire, the other six starters, however, covering the course. There were four starters in the event for engines over 1½hp, and not exceeding 2hp; and one starter for that open to engines over 2hp The winners and their times are as follows: Event 4—For motor bicycles of 1½hp or under: 1, A Rivett, Blizzard (1½hp Minerva engine)—time, 2min 5⅖sec; 2, Bert Yates, Humber (1½hp chain drive)—time, 2min 16⅘sec; 3, F Perman, Excelsior (1½hp)—time 2min 22sec. Event 5—For engines more than 1½hp but not exceeding 2hp: This was won by ET Arnott, Princeps (1¾hp), whose time was 2min 13⅘sec; 2, HW Stones, Rex (1¾hp). This rider was disqualified for a technical breach of the rules, his starter overstepping the mark. Event 6—This was a ride over for H Martin, Excelsior (2¾hp). His time was 2min 16⅖sec. It will be noted that the 1½hp machines did exceedingly well."

"In a quiet corner. Westlake's peculiar position. Tessier."

"THE FIRST RACE MEETING in England confined to purely motor bicycles, run off at the Palace at the on Saturday, created a lot of interest, and many cyclists, of note and otherwise, were there to celebrate the inception of the new sport and (incidentally) to pick up tips that would guide them in the choice of a motor machine. It soon became apparent that the matter of engine power has to be definitely settled somehow. All sorts of absurd powers are claimed by makers, but no doubt we shall in time come to call a spade a spade and not a steam excavator, and to this end such races as were held on Saturday will, largely tend when it is found that so-called high powered engines are penalised. The amateur question also requires to be settled. We do not want the restrictions that exist in cycle racing because the same conditions do not obtain." **Cyclomot.**

“H Martin and his ‘Excelsior’ 2¾hp racing machine with MMC engine, which performed so well at the Motor Cycling Club’s meeting.”

"The 'Precision', a Northampton machine, as it appeared during the trial runs on the Terrace at the recent Crystal Palace Show, where it attracted considerable attention."

"HOOYDONK'S HUNDRED. A cold, raw morning heralded the start of Jvan Hooydonk's attempt to make a 200-mile non-stop run on the Crystal Palace Track last Wednesday. It was not inviting, but so much interest had been created in the aīair that a crowd of fair dimensions lined the track. Starting oī a little after ten o'clock, the Phoenix motor man made good headway, covering his □ðrst ten miles in 24min 21sec; 50 miles in 2hr. 2min 4sec; and IO0 miles in 4hr 14min 13sec. This is, if we remember rightly, the longest distance covered by a motor bicycle on the track. After the turning of the hundred it looked all Lombard Street to a China orange that an uneventful run home could con□ðdently be expected. But the gudgeon pin loosened, and put an end to the attempt. 'Trossie' James was in command of the commissariat department. We believe Hooydonk had clothed himself in two or three vests, an ordinary suit, a macintosh, a sweater, a cardigan jacket, and about four pairs of leggings—and then he felt cold. The total distance covered without a stop was 105½ miles."

L-R: "'Trossie' James hangs on for a lap. Feeding on a big bun. 'North Road' Pellant keeps him company. Venus watches the warmly clad warrior."

“A RELIABLESPEEDindicatoron the handle-bar of a motor cycle would be a most useful addition. Does such an article exist?”

“WITH A MOTORBIKEon‘greasy’ roads don’t jamb on the load, suddenly; the wheel may lock and a nasty fall result.”

“IF A TRIALRUNof an engine on a stand is indulged in indoors, these cold times, don’t expect the engine to start work on the same mixture in the open. It will require considerably more gas.”

“IT MAYHAPPENthat in wet weather the spark will jump over the porcelain of the plug owing to the rain and very damp air. A good plan to prevent this (in an emergency) is to smear outside of plug with solution; fasten a piece of patching rather tightly round plug with solution. It is not a bad plan to ðtapieceof rubber tube tightly over the whole plug.”

“IN THEPRESENTprevailingfrosty weather a thinner lubricant is advisable. We have twice been ‘stuck up’ this winter from a ‘jambed’ piston, owing not to there being insuīiciency of lubricant but to the latter becoming either congealed or too thick to be splashed by the crank. A very light modicum of paraīin will help considerably, and it is advisable to give the cylinder a cleansing, with paraīin after jambing in this way.”

“NEVEREVENFORaninstant leave your electrical connection in situ after the engine is stopped, and don’t switch on before you are going to start engine. Do both these simultaneously. Both means ‘short circuiting’ and that is something like emptying a barrel of water by knocking the bottom out. An accumulator can discharge its full complement of Volts, amperes, &c, in about 30sec, and undoubtedly it ruins itself at same time.”

“IF YOURENGINEseemsto slow uphill, don’t attempt to increase power by advancing spark. The spark must be adjusted to speed of the engine not vice versa. Generally speaking, in traīic it is better to control by cutting out either switch or with valve lifter or both—keep sparking about medium. It is not generally known, but to continually alter sparking knocks the engine about considerably. Always adjust your sparking very gradually to speed of motor.”

“A Hopeless Appeal. ‘Hi, guv’nor, ‘ave yer got a drop of oil on yer?’”

“WHAT THEPRESSSAYS:“TheDailyNews thinks it substantial. ‘MotorCycling—Under this title a new weekly paper has been started which is to be exclusively devoted to this latest

development of the wheel man's recreations. No 1 is a substantial paper presenting a large variety of articles directly and indirectly bearing on this subject, and illustrated with numerous pictures. It is published by the proprietors of Cycling (Temple Press).' The Daily Mail is interested. 'Motor Cycling is the name of a new paper published this week for the □ðrsttime in the interests of motor cyclists. It is full of bright, readable articles and general information, and is excellently illustrated. The new paper, which is issued from the oīices of Cycling, contains much that will prove of interest to car owners, as well as cyclists.' The Birmingham Midland Express doubts not its value. 'I have received the □ðrstissue of Motor Cycling which is published by the proprietors of that most interesting of journals relating to the sport and pastime, Cycling. The journal is excellently produced, and the contents are thoroughly interesting If the quality of letterpress and illustrations evidenced by the □ðrstnumber can be maintained, Motor Cycling will become popular, and will unquestionably prove of value to the followers of this important phase of cycling.' The Daily Express considers the pastime established. 'Motor cyclists now have a paper to themselves. The □ðrstnumber of Motor Cycling, an oī -shoot of that excellent weekly Cycling, has just been published. From the quantity of news and illustrations, to say nothing of the advertisements, it is evident that the new pastime already stands high in popular favour.'"

"WHAT THE TRADE SAYS: **En□ðeldCycleCo** (Ernest H Godbold). 'Have received No 1 of Motor Cycling on which I hasten to congratulate you.' **Eadie Manufacturing Co** (Frank E Baker). 'The paper realises all our expectations and it will evidently set la pace hard to follow.' **Raleigh Cycle Co** (GP Mills). 'Many thanks for No 1. I consider it a most interesting number.' The **New Premier Cycle Co**. We are glad to leant that your new publication, Motor Cycling, has met with such success.' **Strettons (Cheltenham)**. 'Congratulate you upon the □ðrstissue of Motor Cycling. It quite ful□ðlls our expectations, and we feel sure it will be the organ of the motor cycle trade just as is of the.Cycle trade.' The **Hudson Cycle Co**. 'We congratulate you on your □ðrstnumber of Motor Cycling—we consider it will be an immense incentive to the pastime of motor cycling, a most valuable paper to motor bicyclists, and a most valuable medium to advertisers.' **Bradbury & Co** (WL Carritte). 'I received the □ðrstnumber of Motor Cycling, and congratulate you upon it. It is really a wonderful pennyworth, and is the best □ðrstnumber of any kind of journal which it has ever been my experience to see. It promises to be equally as good as Cycling, and I think this is suīicient praise.'"

"SOME MEN I KNOW use motorcycles as they do bicycles, viz. on every possible occasion and merely as vehicles for getting from one place to another, even if they only be a mile or two apart. But I do not consider this fair to themselves or to the motor. For myself I am still content to consider motor cycling as a pastime, and I regard as extremely well spent an odd half-hour or so in going carefully over the machine from front to rear before starting out on a ride. Always do it before a ride—afterwards there is never any time, or there is no light, or somebody is waiting to see you. Always remember to inject those few drops of paraīin into the cylinder; test your battery or accumulator; see that the spark is strong and fat; examine well your tyres and fully in□ðate them; see that the contact breaker is free from oil; □ðll up your petrol tank; lubricate your crank chamber and see that you have a full supply of lubricating oil with you; try the bearings for side shake and put a spanner on every nut and see that it is tight. The half-hour may stretch into an hour and somebody may be waiting impatiently for you; but do not let that worry you. It will save you time later and render your ride more pleasant, even if only from the feeling of security gained from your knowledge that everything was right when you started.
Ernest H Godbold."

"Mr Godbold on his 'New En□ðeld'."

"A GOOD TEST. It is popularly supposed that a 1½hp engine will not take an ordinary rider up a stiī gradient, but on Thursday, when in Coventry, we had ocular proof as to the fallacy of this statement. Just as a test Mr. Bayliss, jun free-wheeled down the bottom part of Bishop Street, turned at the foot, and at the same time started the engine of his machine. Without the slightest sign of a 'miss' the engine took him up Bishop, Street and right to the top of St Nicholas Street. The hill is not particularly steep, but it is of considerable length, and it must be remembered that the engine was not working until the machine was actually ascending the hill. It was a good test."

"G BISHOP (COLOGNE)—Subscription duly received for Motor Cycling. Lieut-Col Milne (Bombay, India)—Will be duly sent to you. Thanks. WG Bluis (Cawnpore, India)—Glad to number you among our subscribers. H Goodall (Agra, India)—Duly received your subscription. Hope you will like No 1 when it arrives. HA (London, EC)—We advise you to get the Phoenix motor bicycle. Thanks for year's subscription to Motor Cycling."

"THE NEW WERNER. JSC (Tullow, County Carlow) writes to say that he has gone carefully into the matter of motor bicycles and has come to the conclusion that the New Werner is about the best. 'Will you, or your readers, kindly oblige,' he asks, 'by informing me through your columns what the faults are, if any, in the latest type of Werner, as I am sure this question will interest more readers than myself?' The New Werner greatly pleases us theoretically speaking, but, so far we have not had an opportunity of testing this type of vertical engine and spray carburetter."

WHY I PREFER MOTOR CYCLING TO ANY OTHER FORM OF MOTORING.

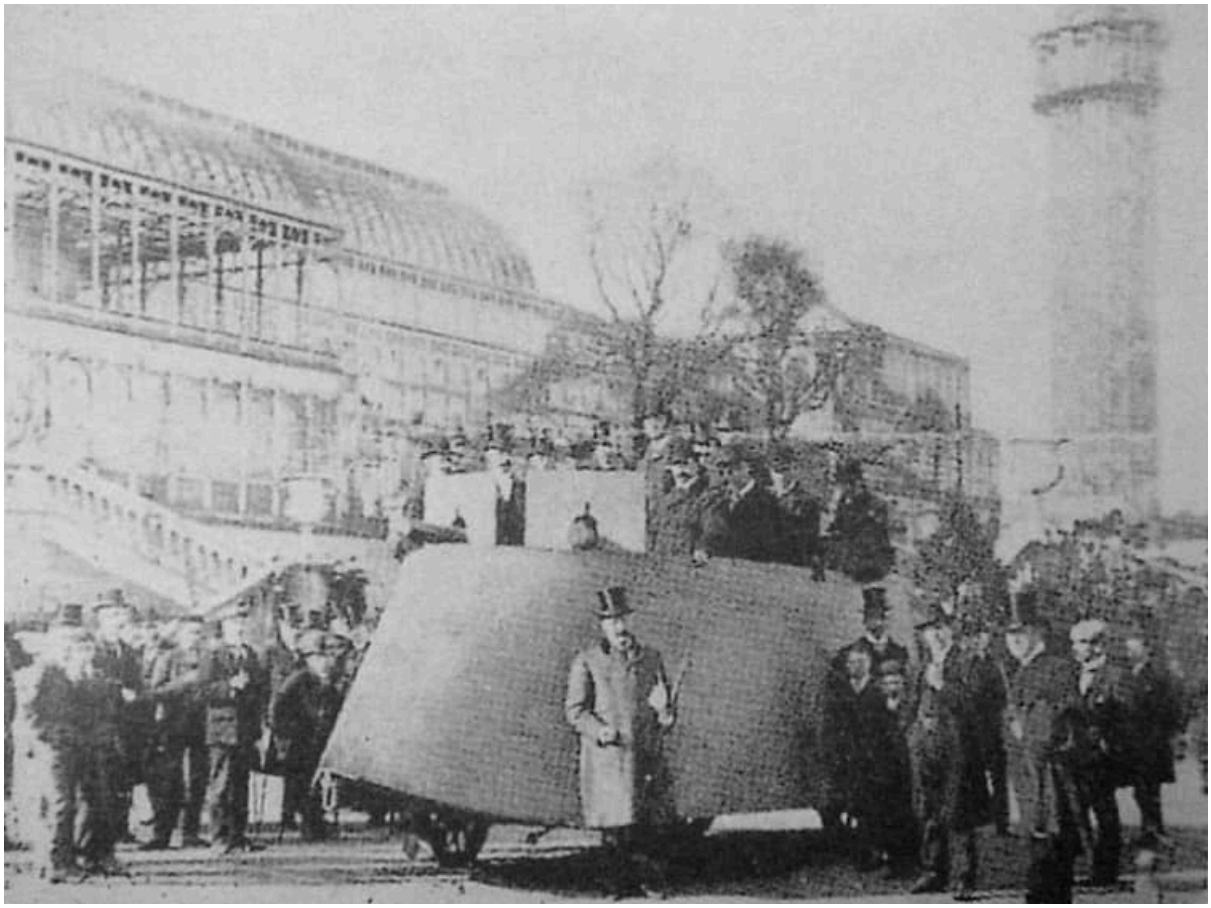
By CHARLES JARROTT.

"IT IS OF ESPECIAL INTEREST to note that Mr Jarrott, who has ridden every type of motor vehicle from the bicycle to the racing leviathan in classic races, should bear such high testimony to the fascination attached to motor cycles. His reminiscences indicate the many types he has driven during his moting career: 'A true Englishman is sporting to the bone, and in this, my opinion on motor cycling, I cannot help but think I am joined by others. In recalling some of my experiences, my mind was carried back to the memories of many motor cycles I have ridden—motor bicycles, motor tricycles, motor quadricycles, all sorts and conditions. Their little idiosyncrasies, their superb anatomy—the study of which the fates decreed should invariably be undertaken by the novice on a particularly wet and dreary day, on his back, in a particularly lonely and inhospitable spot. I remember that early Wolf-Muller bicycle, resembling in its transitory progress nothing so much as an abnormally active kangaroo. Eighteen hundred and ninety-six was the year and a few experimental rides were suïicient to convince me that, unless I buried the machine with a modest RIP inscription, my turn would come □ðrst—that is, so far as the burial was concerned. And then again, that long, snaky-looking bicycle—with the length of a quint and the strength of a feather-weight racer—on which I □ðrst saw the daring Fournier winding his way through the Bois. I had to buy it and I am since certain that Fournier was anxious to sell it. Only a 1¼ hp motor, but it seemed such a □ðier in those days. I remember when I covered a mile in just over two minutes on this machine am the Sheen House track, that we all marvelled at the performance. That little De Dion bicycle also held some records. What tremendous feats I accomplished with it—running feats That is to say, one had to run beside the machine until it took it into its head to start, and then, by a remarkable acrobatic performance, insinuate oneself into the saddle. I am certain in those days I would have had a magni□ðcent chance in the AAA championships. The little 1¾ hp trike, on which I covered some thousands of miles, and on which I cultivated a sprint with a 30in pedalling gear which would have made even Zimmerman himself marvel. Another machine I call to mind—a bicycle this time—with the motor high up in front. The remembrance comes of a sharp rush up a greasy slope, and the glorious somersault as the grand □ðnale. Then that particularly beautiful specimen of a dropped frame motor bicycle, which, however, in sympathy with the weakness of the sex, rebelled on my attempting to ride it: the peak of the saddle and the middle of the handle bar showing a desire for a closer acquaintanceship—I, meanwhile, sitting down hurriedly. And so on, with machine after machine, the increase of power and speed making the sport an ever new one, and in the end culminating in the machine with which I had set my heart on crowding in something more than 40 miles in the hour. As apart from the machines, some of my experiences with them endear the type to my memory. I remember with particular interest a long ride on the South Coast on the

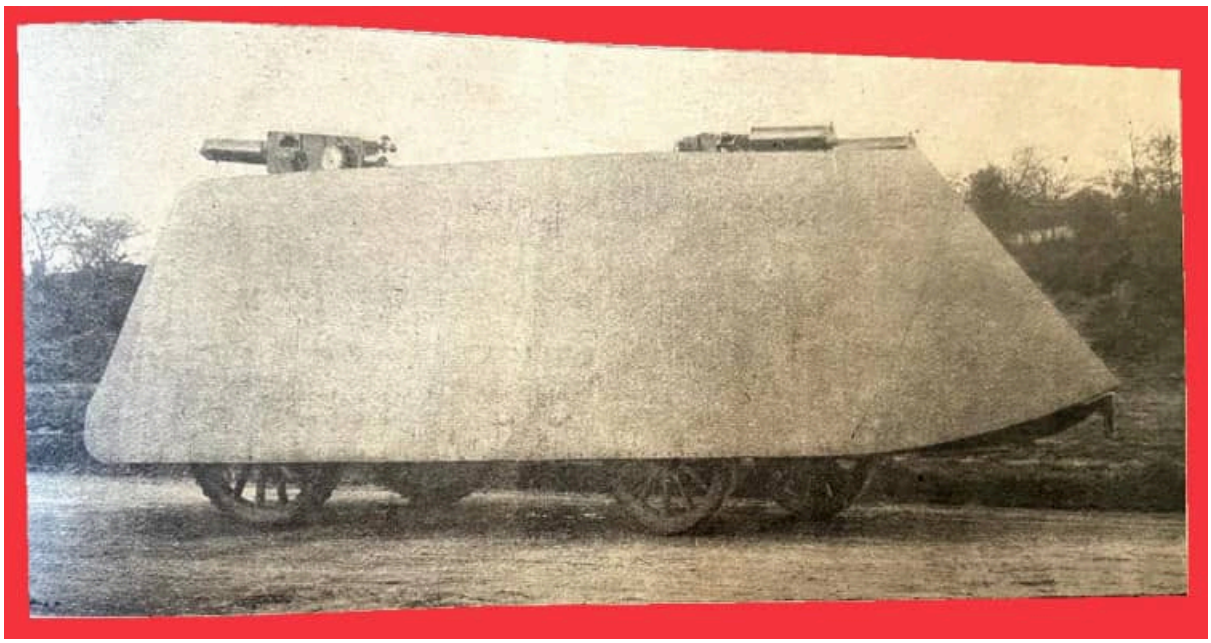
snaky-looking bicycle aforesaid. With the recklessness of a born fatalist I rode the machine for a time with no brake at all, but on this particular occasion, and knowing the hilly district I proposed traversing, I □ðttedapneumatic brake to the tyre of the front wheel. The subsequent puncture down Cuck□ðeldandtheconsequent failure of the brake, with the resultant deliberate cropper into the hedge to avoid a possibly more serious smash, impressed me considerably. Edgeshared some of these motorcycle adventures with me, and it was sport beyond everything which started both of us in the 1899 Paris-Bordeauxrace on our 2¼hp De Dions, with a few dry raisins in our pockets. Our subsequent meeting during the race, when I, after working my way into third position at Poitiers, short-circuited, and laid down (although it was pouring in torrents) to rest; my discovery by Edge,who had been having his troubles farther back; and our subsequent adventurous □ðnishintoBordeaux—allmemories! The racing track appealed to me as well. Who was it said that there was no sport in motorcycle racing? Surely, he spoke as a man not knowing. The uncertainty, the speed of the race, and the keenness of the □ðnishalways struck me as being a happy combination to make up a real sporting contest. And so I could go on, it seems, for hours. Paris-Berlin had its fascinations, a racing car has its charms, but it is possible, even in the world of automobilism, for one to become blasé, even though it be only temporarily; and, although the big-cylindered high-powered four-speed car holds me as its disciple, nevertheless I turn on everypossible occasion to the motor tricycle; shortly to be replaced by a motor bicycle—of the latest pattern—as a very welcome change, and possessing a charm diīerent from any other form of motoring."

FREDERICKSIMMSfoundedthe Society of Motor Manufacturers and Traders and became its □ðrstpresident.Well, it was his idea after all.

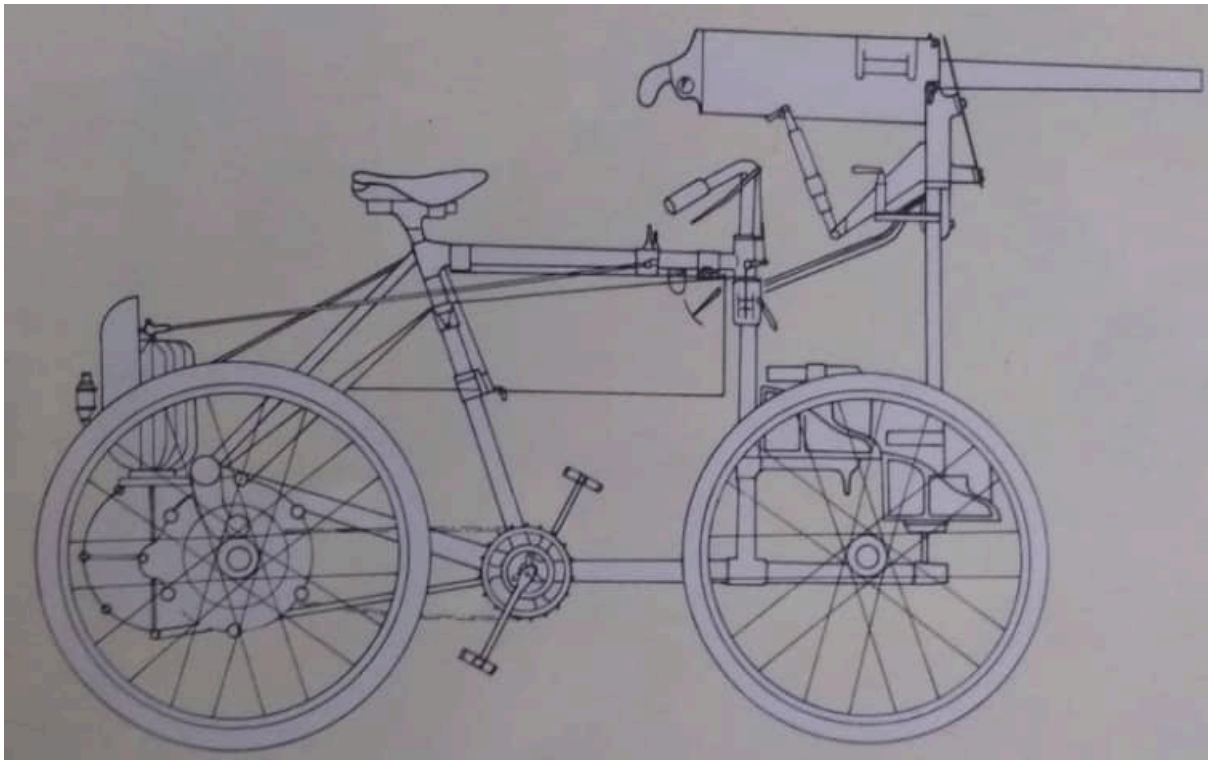
"ON FRIDAYLASTtherewas a fairly large gathering at the Crystal Palace of members of the fourth estate representing the technical and daily press, and of other gentlemen interested in motor matters, to witness the trials of a new motor war-car designed by Mr Frederick R Simms (the founder of the Automobile Club), and constructed by the Simms Manufacturing Company…Thecaris 28ft long by 10ft high by 8ft wide, and the weight with armour, guns, and fuel is 5½ tons. It is intended mainly for coast and road defence, to act as a mobile fort for resisting invasion. It can also be employed for carrying and hauling stores and men, for quelling riots, for search-light operations, and other warlike actions. It is controlled entirely by one man, who can remain below the level of the top of the armour, steering the desired course by means of mirrors. Two pom-poms and two automatic Maxim guns constitute the equipment, and each of these has a man to work it…Themachine is driven by a 16hp water-cooled motor, having four speeds backwards or forwards, the lowest speed being 1½ miles an hour, and the highest about 11 miles an hour."



Frederick Simms, front and centre, with his SMMTmates at Crystal Palace with his ‘War Cart’…



“The Simms Motor War-Carwhich created a bit of a sensation on its passageto the Crystal Palace last week.”



…which was presumably developed from the Simms Motor Scout he'd patented three years earlier—a quad with an engine at the back and a Maxim gun at the front. The gun could be dismounted or □ðred from the quad.

"THE DRIVER HAS TO STOP his car if motioned to do so by any person in charge of a horse or by a policeman."

"PETROL CAN BE STORED without a licence up to sixty gallons, kept in metal vessels securely closed and holding two gallons each."

"THE MOTOR TAX—Motorcycles and cars under a ton in weight are liable to the following duties: Motor bicycle or tricycle, □ðfteen shillings per annum; cars or cycles with four or more wheels, two guineas per annum. If used for the □ðrst time after October 1st the duty is half that given in the above list."

"THE MAXIMUM SPEED has been □ðxed at fourteen miles an hour, reduced by the Board of Trade to twelve miles."

THE MOTORCYCLE UNION of Ireland was formed and staged Ireland's □ðrst motorcycle race.

A PATENT WAS GRANTED to George De Long of New York for a motor cycle frame in which each of the three major tubes served as a container. The top tube served was the fuel tank; the down tube extended below the bottom bracket and contained the coil and battery; the seat tube housed the carburetor, below which was the engine. The Horseless Age reported that the half-gallon tank gave a range of 50 miles. The rider could choose between pedalling or motoring using a clutch □ðtted to the cranks. This also allowed the crank to be locked, providing a □ðrm footrest. According to The Bicycling World after six months on the road De Long's prototype had "rendered excellent service". It was said to weigh 60lb with a top speed of 25mph. De Long found backers set up the Industrial Machine Company to manufacture his machine but it never made it into series production.

TheMotor Agesaid the Delong“had a clear cut, neat appearance that should make friends for it”.

“A CORRESPONDENTSUGGESTSthattheaveragemotor bicycle should scale about seventy pounds, adding a proviso that it be properly made and of good material.”

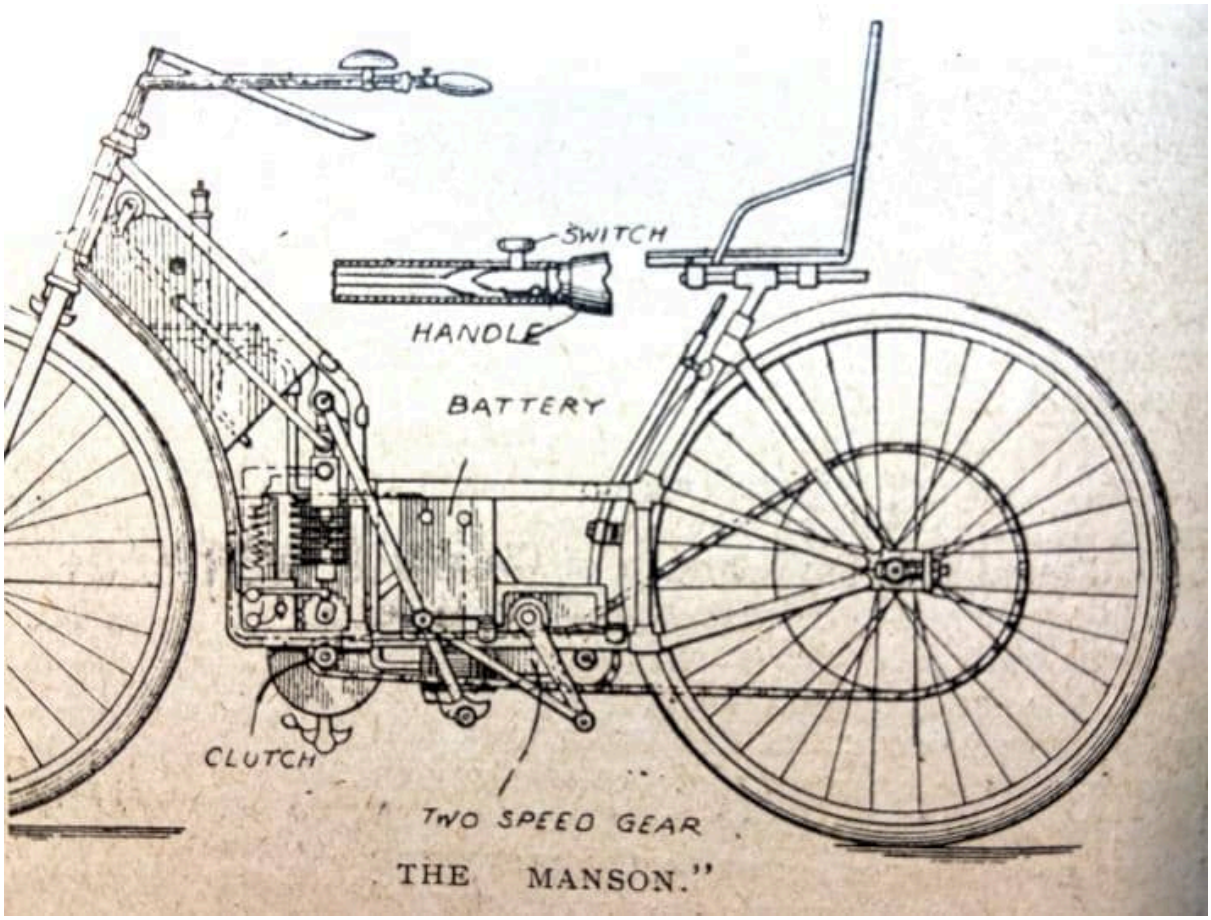
“THE SURFACEALONGtheNorth road lately has been literally inches deep in mud, and the motor bicycle rider has had to drive very carefully in consequence.”

“ON SATURDAYAGREATmany motorcycles were to be seen on the North road; □ðveorsix machines in a bunch were passed at the Duke of York, Ganwick Corner.”

And, 121 years later, the Duke of York is doing just □ðne.

“DO NOTFORGETTHATthelicense for a motor-bicycle costs □ðfteenshillingsand that it is now due and overdue. It is better to make the best of it and pay up than to get summoned and have to pay a □ðneandcostsin addition to the license. If you use a trailer attachment the license will cost £2 2s, that is to say, the same as that for an ordinary carriage. In many districts the inland revenue oīicers are very sharp, and are likely to be more so this year.”

“THE MANSONMOTORBICYCLE. Thisnew form of machine hails from New York. It is provided with a drop frame made of four tubes, each set of two running parallel to each other except near the head of the machine, where they converge to the central head socket. The engine is of the De Dion type, arranged in a vertical position at the front of the frame, and drives, by means of a chain, a cross shaft at the rear of the lower portion of the frame. A chain wheel or pulley is carried by the other side of this cross shaft from which a chain or band drives the rear wheel. The cross shaft and pedal crank shaft pass through a two-speed gear box. [An extremely early example of a two-speed transmission of the type that contributed to Indian’s hat-trick in the 1911 Senior TT—Ed]. The cranks are driven, by means of pedals carried at the lower ends of dependent or hanging levers, which are connected to the cranks by connecting rods. The handles are rigidly attached to the handle-bars, the starting and stopping switch being arranged to slide in one of the handlebars in close proximity to one of the handles. The chain wheel on the crank shaft of the engine is provided with a clutch so that the machine may run free when the engine is stationary.”



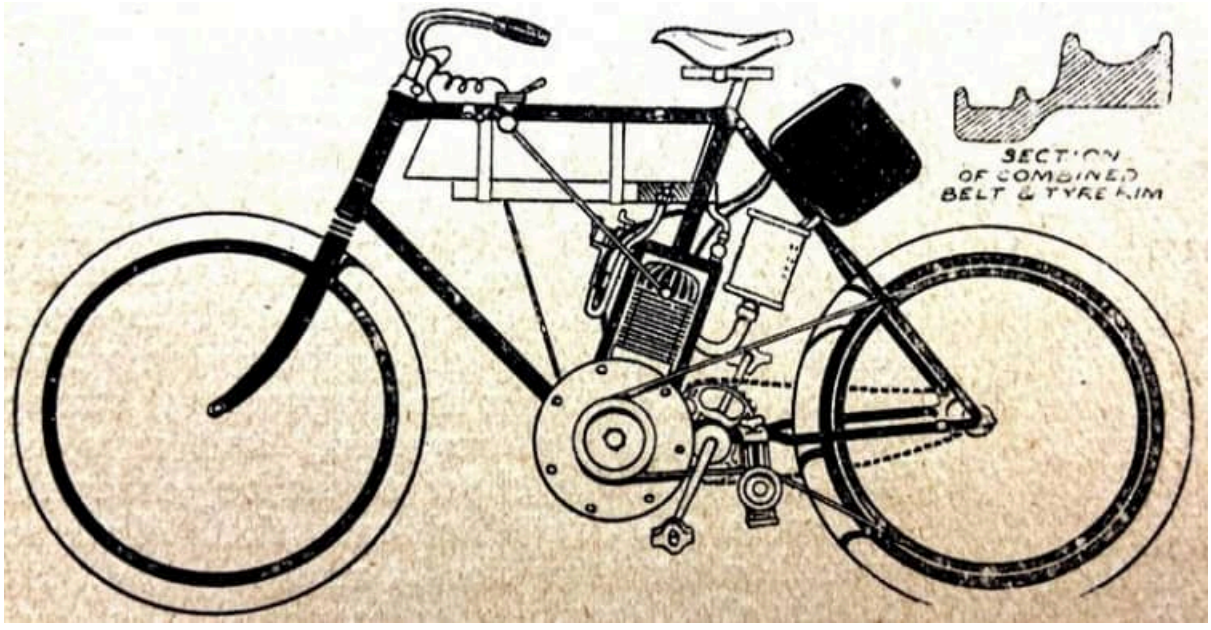
ONLY A YEARAFTERitwas set up Belgian □ðrmSaroleawent racing and carried Martin Fagard to victory in the Belgian championship of speed at the Liège velodrome. Fagardwent on to run the company.

OPERASINGERWilbur Gunn built Lagonda bikes powered by De Dion-style engines.

STANLEYWEBBdeveloped a rubber and canvas drive belt.

GEORGEHOLLEYrodeoneof the motor cycles he and his brother Earl were producing to victory in an endurancer race from Boston to New York. A local newspaper reported: “His control of his machine was superb. Neither mud, dust, sand, ruts, hills nor anything else fazed him. Once when another rider complained of the roads Holley smiled.” Despite their racing successes Holley motorcycles did not sell well so Georgeand Earl switched to cars and began making Longuemarecarburettors under licence. Holley carburettors later became hugely successful, producing hundreds of millions of carbs for cars, CVs, boats and aircraft—but not motor cycles.

“THE HOLLEYMOTORBICYCLEisan American production which will be marketed in this country by ED Morgan, of the Motor Works, Cheltenham. A specimen was shown at the Agricultural Hall and attracted considerable attention. It has a special frame, a large malleable casting being brazed with the frame and forming the ring of the crank chamber for the motor. The latter is of 2¼hpand drives through a □ðatbeltonto a special wood rim, the tyre rim and belt groovebeing combined in one device which is built up in sections on Fairbank’s principle. The belt is adjusted by means of a jockey pulley which itself is adjusted by thumb and □ðnger.Aspray carburetter, a very large exhaust box and a sight feed lubricator are □ðtted,whilstthe petrol capacity is suīicient for 60 miles,. A New Departure back-pedalling brake is used, and a front brake will also be provided. Themachine is said to be almost noiseless and free from vibration and is moreover a powerful hill climber. It is priced at £45.”



The Holley was marketed in the UK by Ed Morgan of Cheltenham.

“THE NEEDOF A STRONGERmadeandmore powerful lamp for motor cycling has been quickly recognised by the leading accessory □ðrms.JosephLucashavea special lamp which burns petroleum and is said to be very satisfactory. Many riders have a great liking for the oil variety, however,and, if properly constructed, we do not seewhy this kind of lamp should not retain its popularity. Thewriter is at present testing a sample of one of the best known makes of this class of light-giver and will give his experience as soon as possible.”

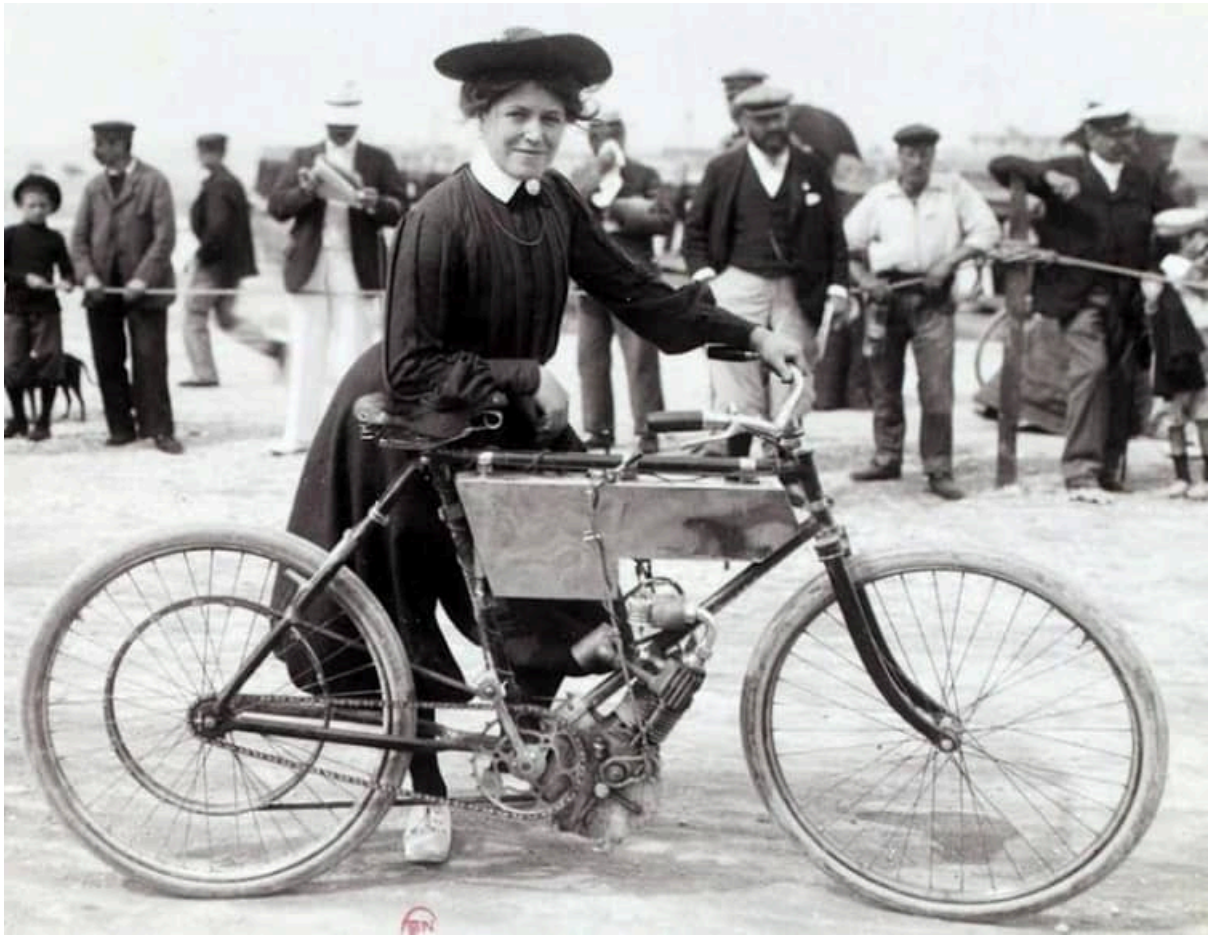
“WITH THEVIEWTOencouraging the use of motors in Australia, the Government has abolished all customs duties, which were in vogue up to quite recently. New South Wales was the only one of the Australian colonies which allowed the free entry of motors.”

“IN CONNECTIONWITHTHEusual Charity Sports Meeting which takes place at the Aston track on Wednesday, it has been decided to bold one or more races for motor bicycles. About two seasons ago when a series of motor-tricycle races took place on the Birmingham track, the spectators were very enthusiastic, and it is hoped the introduction of the now popular bicycle form of motor will do much to revive the interest in racing in the Midlands. We think it would be wise, however, for sports promoters to allow only riders who have had some experience of path riding to compete.”

“NOT SCORNED, BYANYMEANS! From the last ‘Automobile Club Notes and Notices’ we note that the Automobile Club has not relinquished all interest in motorcycles. An advisory committee is about to be appointed to consider and report what action should be taken by the club with reference to their encouragement. At a recent club meeting, when a paper was read on motorcycles, one of those who took part in the discussion that followed made a point of the fact that there was no doubt owners of motor cycles would eventually blossom out into car owners So, no doubt, some attention has been paid by the club to this speaker’s wise remarks.”

Georges Osmont rode an uprated 1,350cc De Dion racing trike at Deauville, covering the kilometre course in 33.8sec to average 65.8mph. Right: Victor Rigal subsequently upped the ante with a □ðying kilometer time of 28.8sec (77.7mph) at the Gaillon hillclimb aboard a 4.25-litre Buchet vertical twin.

A world away from Osmont's record breaker, this DeDion was clearly aimed at the luxury end of the market.



Solos at Deauville included Buchet, Peugeot, Serpolet, Dion-Bouton, Griīon, Clément and,

pictured, a 1½hp Pecourt, weighing in at just 30kg and ridden by Mme Jolivet, described in a contemporary report, as “Premier Recordwoman De Vitesse En Sports Mechaniques Kilometre”. She and her husband were both factory riders.

Charles Coudert, pictured with his Lurquin et Coudert during the □ðrstmotorcyclerace at the Bois de Boulogne. The event was staged by L’Auto-Vélo in honour of the Shah of Persia, who was a bit of a petrolhead and went home with a 50hp Serpollet. Coudert didn’t win; Derny led the □ðeldhome on his Clement twin.

MARCELRENAULTDROVEONEOF HIS CARSto victory in the 615-mile Paris-Vienna race at a respectable average39mph. But while cars dominated the event trikes and bikes made their mark. Georges Osmont □ðnished45thon his De Dion trike; the □ðrstbikehome was a Werner ridden by M Bucquet. They both beat dozens of four-wheelers to Vienna and Michelin was so pleased by Bucquet’s eīorts that they displayed a rather □ðnefrescoofthe man, his bike and their tyres at the company’s London oīice. Threeother bikes □ðnished:anotherWernerridden by M Labitte was 58th; Herren Krieger and Podesenick □ðnished66thand67th on Laurin-Klements.

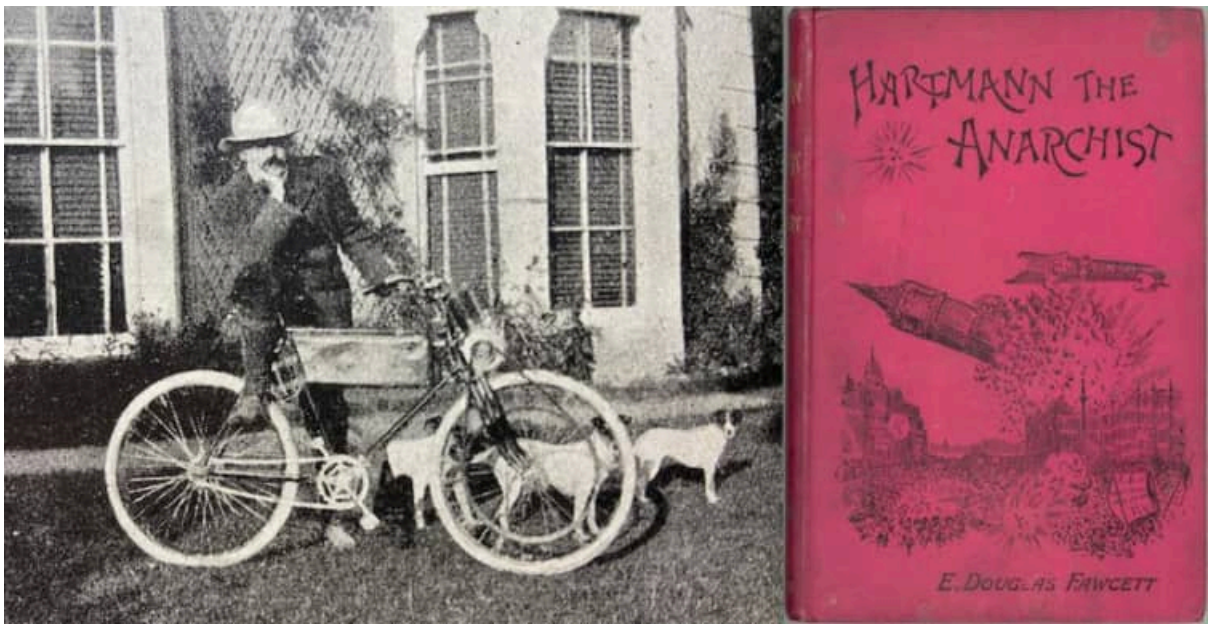
Herren Krieger and Podesenick □ðnished66thand67th on Laurin-Klements; this is either Krieger or Podesenick.

Bucquet averagednearly 23mph from Paris to Vienna on his Werner.

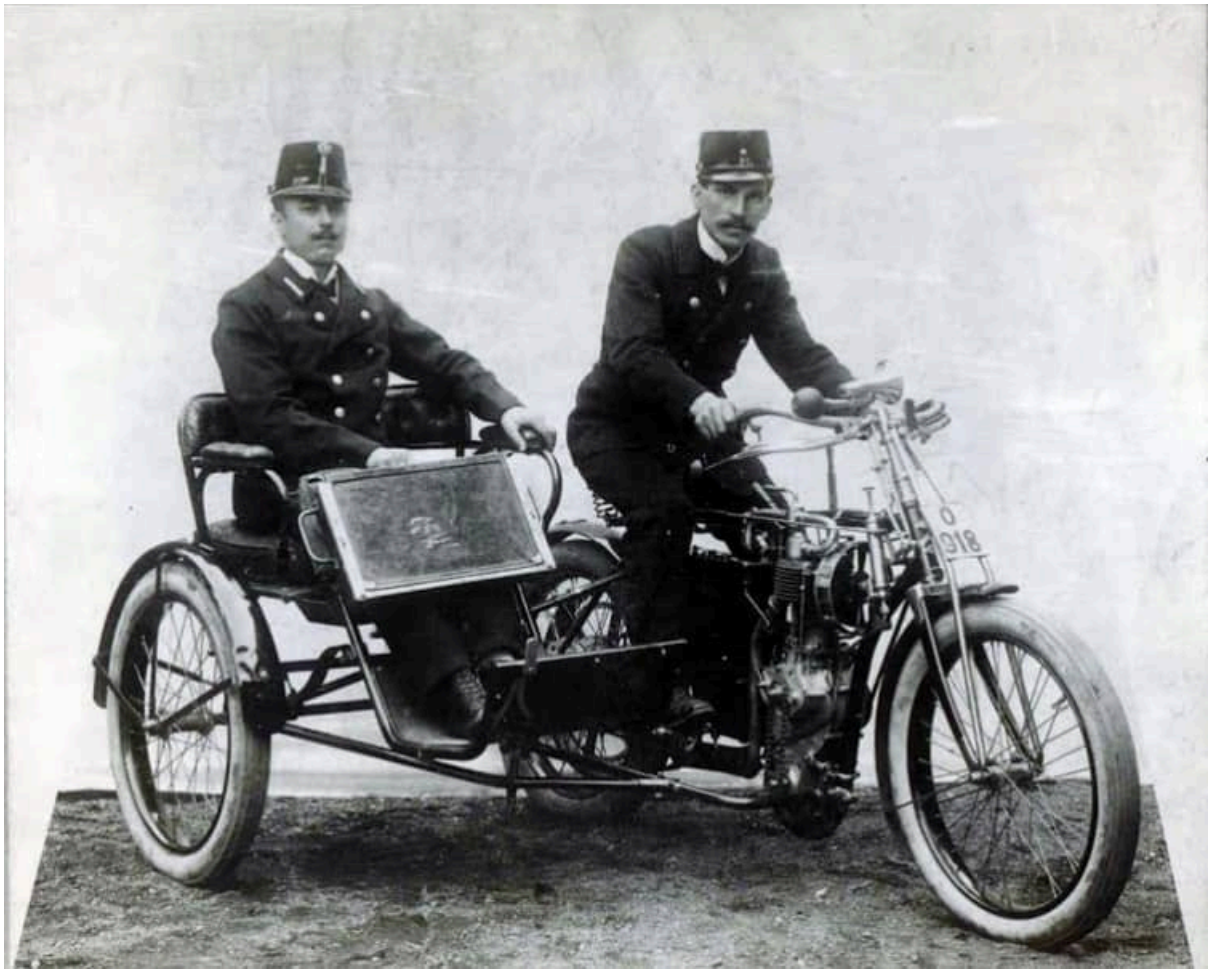
Another Werner, ridden by M Bonnard, won the ⅓-litre class in the Motor-cycle Club de France's regularity trial.

"ALL THINGS CONSIDERED, I rate motorcycling as perhaps the most enjoyable outdoor pastime I know. Hence I lose no opportunity of voicing its claims, having a suspicion that most cyclists are still as ignorant of its charms as I was till the close of my 'sceptical period' last May. I have heard the motorcycle decried as a toy, but last year the statement was untrue and this year it must be dismissed as ludicrous. Personally I much prefer it I to the motorcar, combining as it does the delicious □ðight of the one-track bicycle with the 'life' of a motor-driven vehicle…the one-track machine has a charm absolutely unique and peculiar to itself, and to combine this with the advantages of a motor is to know what true cycling is; to experience at last in fact the cycling that used to haunt our day-dreams…Just think of the advantages! No more forbidding hills, no more absorption in ' donkey-work' when running through □ðne but undulating country; no more discomfort, overheating and perspiration from undue exercise in broiling summers…high power and speed and last but not least, your arrival, fresh, wholesome and presentable at your goal…My own experiences have been acquired mainly in the company of the 1901 Werner, which, with all its faults, was to my thinking by far the most practical machine oīered to the British public last year…The Werner was much superior to the Minerva…It was also much faster than the Singer, though not so powerful unaided on steep hills. I say unaided because, given

auxiliary pedalling in both cases, it was, owing to its lighter weight, somewhat superior…That this machine was altogether satisfactory it would be absurd to contend; indeed it caused myself and other riders I know considerable trouble and expense before it proved thoroughly serviceable, but all the same it aïorded us a season of keen enjoyment…I did not believe the published reports at □ðrst…but on a provincial 'dirt' racing track, I found its maximum speed about 32 miles an hour; a speed which might be kept up for a long while without overheating…until need of lubrication compelled a stop. The new 1902 machines will all have automatic lubrication but in 1901 we were not so favoured, except in the case of the Phoenix, which has set a most excellent example to makers in this and many other important respects. As to hills—the curse of ordinary riding in Devonshire such a machine will go up most long slopes without assistance and that at a good speed, and aided by pedalling will any hill that is likely to be encountered on a high road. most steep hills can be ascended (the rider assisting) at a quite exhilarating rate; a rate amazing to. those mounted on ordinary cycles, but, nevertheless, inferior to that which can be got out of a motor tricycle such as the De Dion or Ariel…This year will, doubtless, see the inauguration of many forms of motor-bicycle competitions on the track. Classes will be necessary and, of course, the high-powered advertisement monstrosity must be made to compete with enormities of its own type. I sincerely trust that these 'puïing billies' will not be encouraged by the racing powers that be. Intended for the track they will eventually emerge on to the roads, making moting odious in the sight of thousands…All good motists should do what they can to discourage the: production of these pests of the highways."—**E Douglas Fawcett** [Fawcett was a mountaineer, philosopher and novelist who was a pioneer of colour photography and aeronautics as well as motor cycling.]



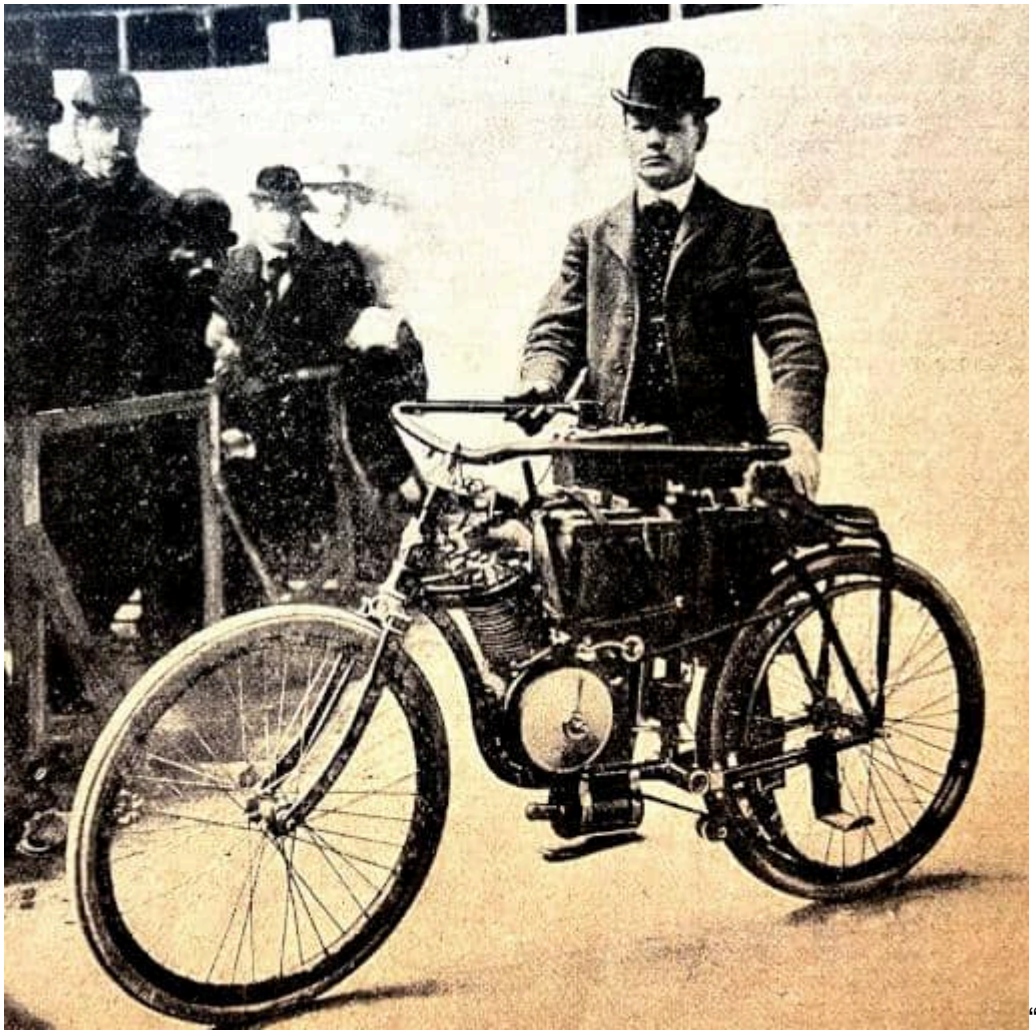
Edward Fawcett strikes a pose with his Werner. His 1893 book Hartmann the Anarchist (written when he was 17) featured an airship bombing London.



Laurin & Klement's sporting success clearly in□ðuencedtheauthorites. This seems to be a Bohemian police combo (not a phrase I've used before).

"RUGS AND APRONS and large gloves, which can be worn on a car, are unsuitable for cyclists. Nor can one reasonably be expected to adopt such cranky notions such as I heard of the other day. A man I was told of takes long strips of brown paper—certainly an excellent non-conductor of heat—and winds them puttee-fashion round his lower limbs before putting on his stockings. To protect the hands from the piercing wind he hangs a piece of card directly in front of each handle grip! [He had the last laugh as handlebar muīs appeared on the market soon afterwards—Ed] Truly some of us are willing to go to extremes in our search for comfort! The crackle of the paper when that man [presumably they called him Russell…sorry, couldn't resist—Ed] is walking about, and the appearance of the pieces of dangling card, must create plenty of amusement for spectators. The warmest thing in gloves is a pair of a size or two larger than one customarily wears. The cushion of air between the □ðeshandtheglove becomes warmed and is then an eīicient protection against the outer cold. Padded gloves, though otherwise objectionable because the padding absorbs the moisture and becomes clammy, have this advantage, that the skin of the glove is kept away from the hand and the air lying between the two surfaces is able to □ðllitsgoodoīice. But for all practical purposes I □ðndthat large-sized driving gloves are the best, and it is advisable to have them with gauntlets which completely close the openings of the sleeves and so prevent the inrush of cold air up the arms. The ankles are extremely sensitive to the cold and, in fact, the wrists and ankles largely control the general bodily warmth. If those parts are kept warm the body is generally warm—a fact which justi□ðedthemitten of our grandmother's time. At the present there is nothing to choose

between boots and gaiters and shoes and gaiters. With the former combination the ankles are kept, warm, but it is diīicult to pedal, whereaswith the latter combination pedalling, when necessary, can be done in comfort, Justthe ankles are left unprotected in the gap between the shoe and the gaiter. What we want is a combination of gaiter and spat and ,there ought to be a big sale for a serviceable article of this kind. “



“CHAMPION, the French‘chauīeur’, and his new motorcycle, which has met with such success in America, having covered the mile in lmin 12sec on a circular track.”

“The speedy division in the motor bicycle rankswill examine Champion’s mount with interest. Theposition of saddle and the abnormally long handlebars are expressly noteworthy. This Franco-American rider is been putting up a lot of fast times on covered tracks in the States.”

“FASTMOTINGIN FRANCE.Janatzy’srecent record attempt gives an averagespeed of over 65 miles an hour. This speed is yet a bit under that attained by both Rigalon a motorcycle and Fournier on a motorcar, but Jenatzvintends trying again, and hopes to cover the distance in 30sec. His ‘mount’ is a car of the ‘mixed’ system—that is, with a combined electric and petroleum motor.”

GLENNCURTISbeganmanufacturing motorcycles when his former employer asked him for a self-propelled bicycle to help him commute—his route included a hill that was givinghim trouble. Curtiss ordered an engine kit from ERThomasin Buīalo, NY;what he received was a set of rough castings without a carburettor, ignition system or instructions. With the help of a local

engineer Curtiss produced a working 130cc 1½hp using a carb adapted from a tomato soup can containing a gauze screen to pull the petrol up by capillary action.. The ignition came courtesy of the family doctor, who supplied a medical electroshock generator. The bike was dubbed the Happy Hooligan; not surprisingly it was crude but learning fast, Curtiss built better and faster. By year's end one of his machines made the fastest time at a Labor Day road race in New York; within □ðve years he would become the fastest man on earth.

Glenn Curtiss made a carb from a tin can and an ignition system from an electric-shock device.

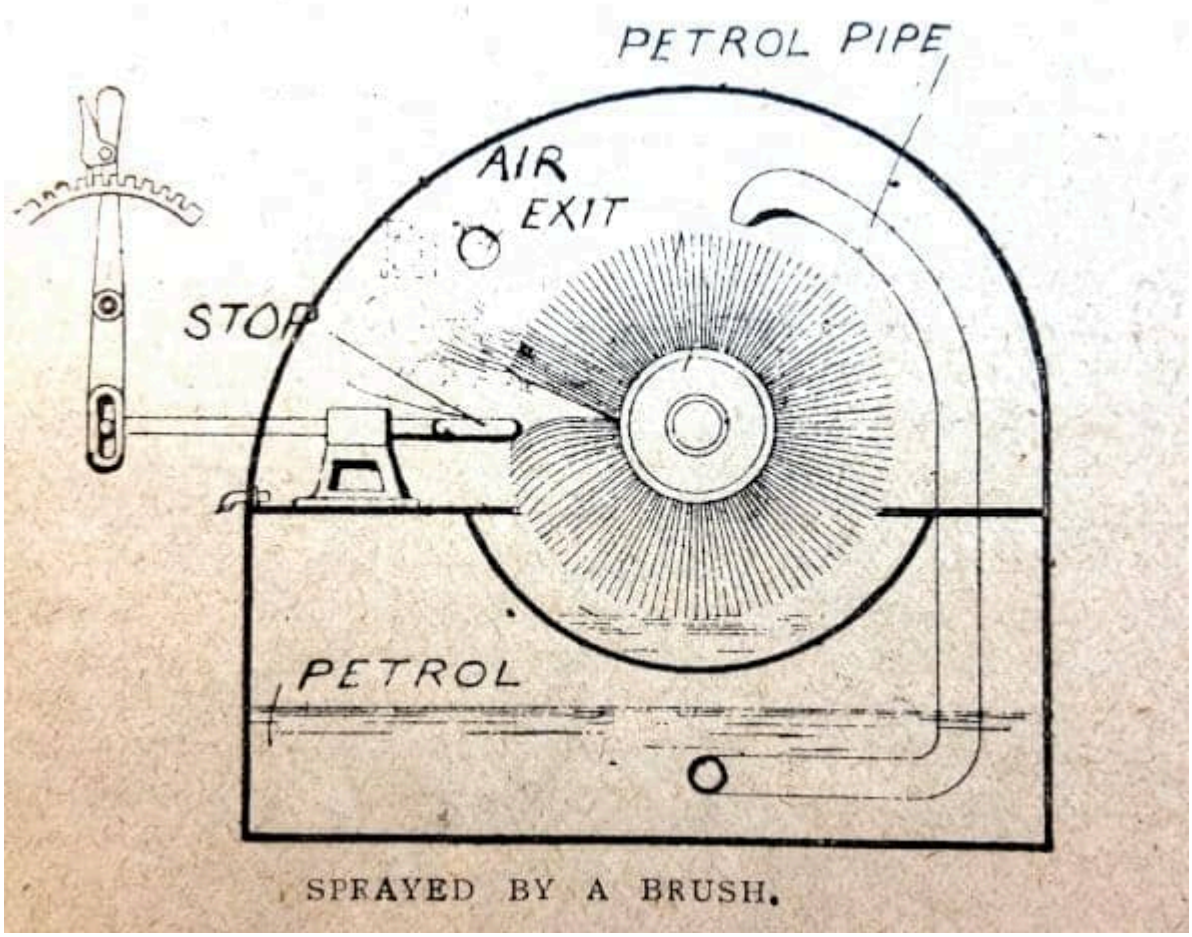
JUDGING BY THIS COMIC CUT, from the Anerley Bicycle Club Gazette, little love was lost between two-wheeled folk and the authorities: "At the closing run concert, Long Crank Marshall sang a song about a 'Happy Land'. Being fond of adventure, I obtained from him the exact address, and from here I am in a land where 'coppers cease from troubling, and the perjury gets a rest'. How I got here, never you mind. It's all right. Cyclists and motorists in this ideal country have a gorgeous time. They are looked upon as men and brethren; and not treated as criminals and vehicular pariahs, as you poor souls are in good old benighted, obsolete, manure manacled

England, where any person with advanced ideas on locomotion is pounced upon by uniformed chawbacons, lectured at, and □ðnedinandout of season, reason, and commonsense, by fossilised senile dunces with a hazy sort of notion that they can stem the march of progress by sitting on a bench and prating about public safety. These semis-guided duīers apparently cannot see what is obvious to everyone not blinded by prejudice, namely, that they very class of persons they now delight to harass and maltreat will within a short period of time arise in their might and cause them and their rotten system to be swept away as a disgraceful, disgusting menace to the public at large. But you must work your own destiny. This is the place for me. You go any place you like here. On the other hand, you □ðndyourselfmistaken if you think you can bash in the front of a person's face with a bludgeon for □ðvepounds. Aman who tries this on is scalped, and they take it oī level with the shoulders. The main roads here are nowhere less than two hundred feet wide, beautifully graded with easy curves, which can be taken at full speed. The surface is composed of some material resembling compressed cork with a dull green colour, so that it looks just like a freshly-ironed billiard table. Needless to say, sideslip is absolutely unknown, and owing to the beautifully smooth surface pneumatic tyres are not used, but solid rubber tyres of wide crescent shape. The cars are built with a system of spiral springs and rubber buīers, which make for luxuriousness and comfort to a surprising degree. There are permanent longitudinal lines ingrained in the roadway, dividing it into four stripes of □ðftyfeet each—two for up and two for down traīic. The 'slows'—that is, cars and cycles travelling at thirty an hour or under—have the strips next to the footway. The two centre tracks are for ordinary traīic, which averages about 120 per hour. The footpaths are □ðftyfeetwide and railed oī much in the same way as the promenade at Brighton, with the addition of a wire screen from rail to ground, so that it is almost impossible for any child, old person, or ordinary pedestrian idiot to dodge oī the pathway suddenly under the wheel of a cyclist, and cause him to dismount profanely upon his nasal appendage. There are gates in the fence, of course, in charge of oīicials who are old cyclists, and know the game. Cows, horses, dogs and other disgusting insects, together with any antiquated forms of conveyance, such as trams, 'buses, bath chairs, and 'beano' juggernauts, are relegated to the subways, which are of ample width, lighted with luminous paint, well ventilated, and in all seriousness very much too good for them. Numerous sloping entrances to these subways give access to the surrounding country roads. No cycle or car is allowed to proceed at less than ten miles an hour on the main roads, but there are side bays for those desirous of stopping. No lamps are needed after dark, as the track is illuminated throughout on the electric diīused sunlight system which forms a complete and continuous dome of soft, sunny daylight overhead. When it rains there is no inconvenience—it is simply wet, not slushy; when it ceases raining, it is dry underfoot—not slimy glue; all owing to the excellent material of which the roads are made. The roads are in charge of engineers—not perjury experts—and they patrol in splendid cars which are in wireless telephonic communications with depots, so that in case of need a breakdown gang can be summoned from any spot, and parts being standardised to a marvellous degree, you have only to name the defective portion of your motor, and it is brought along by the workmen quite as a matter of course. No waiting about for six weeks while they send abroad for something that ought to be made at home if the authorities would give the game half a chance, eh! Every mile or so there is a □ðnebridgeovertheroadway, festooned in a most artistic manner with creepers and blooming □ðowers, and the sight is very beautiful. There are no fogs, and here again London is all behind, as it was discovered in this part of the world at least □ðftyyearsagothat fogs were caused by the local emanations from beasts of burden, and since horses have fallen into comparative desuetude, fogs are almost unknown here. Therefore, if you want to cure London of its fogs, get rid of all the horses and their eīluvia (fugh!), and instate mechanical (and sanitary) locomotion.

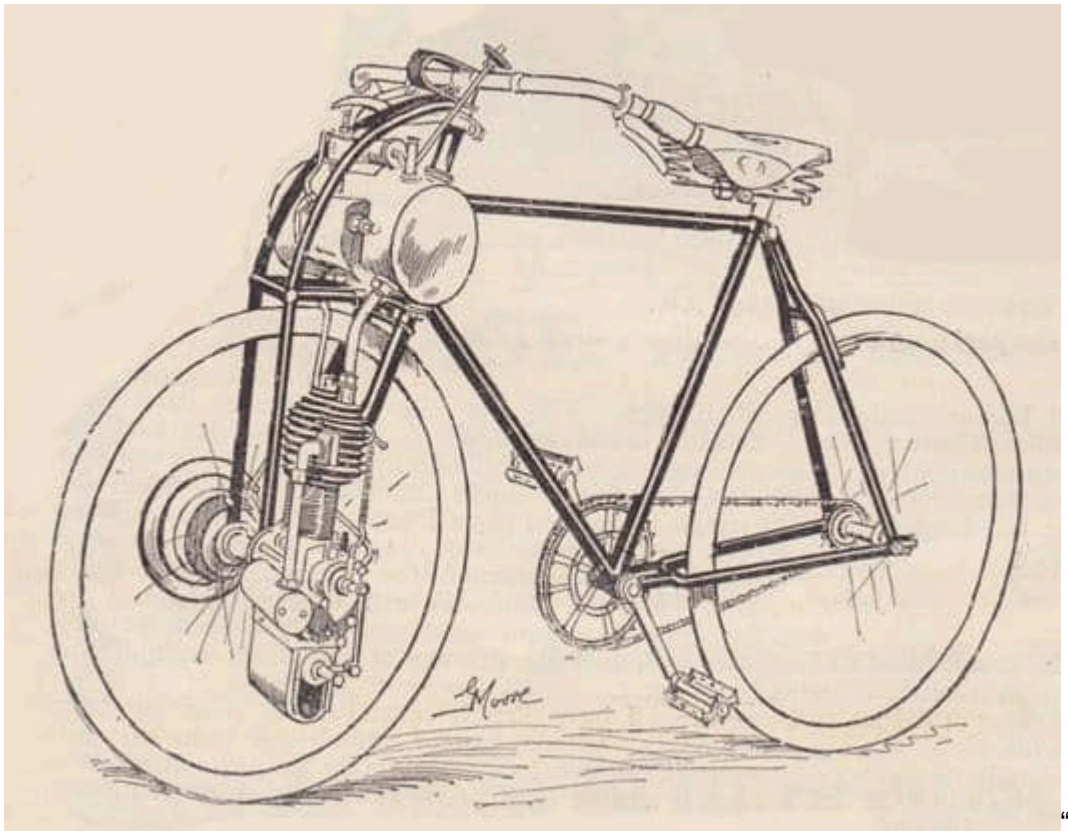
Take a tip from me: The 'wicked city' has got ten years in which to scramble up to date. If she has not done it by then, there will be no London. Cars may not drop oil around on the □ðoor, but have to carry fenders underneath to catch any over□ðow or waste discharge. Petrol can be obtained anywhere on the slot system. You stop at a standard—I don't mean a sewer ventilator, there aren't any here—connect a □ðexible tube to your tank, drop your money in a slot, and your tank is □ðlled. No screw caps, empty cans, funnels, spilling petrol up your sleeve, or any of that bother. Goggles are not to be worn, as there are no □ðies owing to the avenues of stately trees lining the thoroughfares being treated at the roots with McGlue's patent injection, which has the eī ect of causing all the branches and leaves to exude a glutinous □ðlm to which all insects are stuck fast. Birds, therefore, instead of dashing hysterically about, sit up aloft, with the tables always spread, and warble sweetly. There is no dust, as the surface of the roads is not being perpetually polluted and pounded by horses, torn to rags by skidpans, or cut to pieces by iron-tyred vehicles. Each section of road is being constantly covered by a car □ðtted with a huge kind of Bissell carpet sweeper, which wafts along and gathers up any foreign matter, and oh! joy!! there are no water carts!!! Silencers really 'silence', which may strike you as funny, but it isn't. A simple piece of mechanism—which I wonder I haven't thought of myself—extracts the noisy part of the sound as soon as it is formed, and the slight residue which discharges into the air makes no more noise than a maiden's sigh; and as it passes over a scent sachet, you have a perpetual nosegay. It's lovely! So diīerent from the paraīin-oil-stove sort of smell you are used to. If by some oversight a pedestrian does leak into the roadway, you simply drive straight at him, scoop him into the mancatcher in front of the car, copy the number of his licence oī the soles of his boots—all pedestrians have to be licensed to walk about—and then whilst going at full speed, at the □ðrst opportunity, by pressing a spring at your side, you project him bodily into one of the overhead wicker baskets provided for the purpose. The attendant in charge gathers him in, dockets him, and dumps him into a rack. He's then charged at the next Petrol Parliament (which consists of paid experts, and sits every day—not unpaid noodles who might sit all year round and not hatch any sense worth having) upon the count of 'furious walking'. If found guilty he is □ðned ten pounds and costs, has his licence to walk about endorsed and is con□ðned to subways for six months. A second oīence means twice the □ðne and two hours' in□ðiction of the 'bastinado' ["punish or torture by caning on the soles of the feet"], but applied higher up than usual, and from the rear. All this is as it should be, and I am applying for the post to wield that bastinado, as I owe those pedestrians one."

In 1902 Bruneau marketed a bike with chain transmission and clutch: later upgrades included water cooling and shaft drive.

“A SIMPLE SPRAY CARBURETTER. Messrs Dalton & Wade, of Coventry, are the inventors of a simple form of spray carburetter, which consists of a casing the lower part of which forms a reservoir for the petrol, and the upper part a chamber to contain the spray mechanism. The petrol is forced by the pressure of the exhaust. or by other means, through a pipe which delivers it on to the bristles of a rotating brush. This is driven by the motor through suitable gearing. A stop or projection is arranged in the path of the bristles so that they are de□ðected and rebound into their normal radial position at each revolution, and as they rebound they throw the liquid into □ðne spray into the air as shown. The position of the stops or [sic] projection may be regulated by lever or other mechanism, and thus the amount of spray may be varied. The upper part of the casing is furnished with an air inlet and an air exit, so arranged that a current of air passes through the spray to the inlet valve of the combustion chamber of the motor.”



"A CURIOSITY IN MOTOR-BICYCLE DESIGN: The machine illustrated is the speciality in motor-bicycles brought out by Motor Wheels, Ltd, Euston Road, London. It departs entirely from conventional practice in design, the whole of the motor gear being carried by the front forks. The motor is a Simms, □ðttedwithmagnetoignition, and the drive is by a Crypto gear to the front wheel axle. The petrol tank, carburetter, coil and accumulator are supported on a bracket attachment carried by the forks. A stout □ðatspring□ðxedbetweenthehandle-bar and stem reduces the vibration considerably. Whether or not a machine of this type would be liable to side-slip badly is a doubtful point."



"Motor Wheels Ltd design of motor-bicycle."

"SIR,—YOURPAPER[MOTORCYCLING]HAS been a great success, and must have helped many. I notice a contributor says that 'two seasons ago the motor-bicycle was almost unknown as a practical and reliable machine'. It may well have been—to him—but it is not true that it was unknown. There were plenty in France, and I myself rode 2,000 miles on my Werner in England in that year—1900. It was very practical and very reliable.
Algernon L Bennett."

SIR,—ASANINSTANCEOFADVANCEin the reliability and simplicity of motorcycles, I thought I would send a few lines to tell you of a capital run I made the other day on a new Singer motor-tricycle. It is exactly 103 miles from my house to this town (Bath) and, leaving at 10am, I actually accomplished this journey with only one stop, that being 51 miles out—for lunch. I therefore made two absolutely non-stop consecutive runs of 51 and 52 miles respectively, each run taking 2¾ hours. I used exactly one gallon of petrol and half a pint of lubricating oil from my oil pump tank. I did not experience so much as a mis□ðrethatIcould detect, and must say that I have fallen in love with magneto ignition.
W Herbert."

A RIDERIN NEW ZEALAND recounts his experiences with one of the earliest motor-bicycles—a Minerva—sent over. Taking it to Christchurch, where a big Cycle Carnival was in progress, he caused quite a sensation by riding it a few times around the track. A few days afterwards another race-meeting was held, when the □ðrstautomobilerace ever run in New Zealand was one of the events on the programme, and the Minerva had rather an easy win."

"A WEEK-ENDPOTTER. On the slippery North Road, during last week-end we saw Hooydonk and AF Ilsley, the latter on a chain-driven 'Humber'. Further on, the Lord Advocate of Scotland on a

'Phoenix', and CW Brown on an 'FN' were noted getting over the greasy ground with comparative comfort."

"IN A CHATTY LETTER we received the other day from that proli□ðc inventor, PL Renouf, he tells us that he believes be has solved the problem of providing a graduated speed gear, working from zero to 1 in 4. He has been working on this for some years. In the working model, by merely turning a handle while the motor is running, the driving wheel can be started from absolute rest to any required speed and back again to rest. 'The gear,' he writes, 'is simpler and cheaper than any two-speed gear as yet made, has no slip, no friction clutches, cones, belts or toothed gears, is quite positive and can be made automatic, so that the vehicle will gear itself down on a rise and gear itself up again on the level.'"

"Furious driving to the public danger ought most certainly to be put a stop to, but we cannot overlook the fact that the Bench is very often too severe on cases of so-called 'furious driving' brought before them. At Gloucester one day last week the driver of a car was □ðned ten pounds and costs (thirteen and threepence) or one month's hard labour for driving a car from Gloucester to Cheltenham at a speed variously estimated by the witnesses who gave evidence, at from 14 to 40 miles an hour." [His □ðne and costs would equate to well over £1,000 today—Ed.]

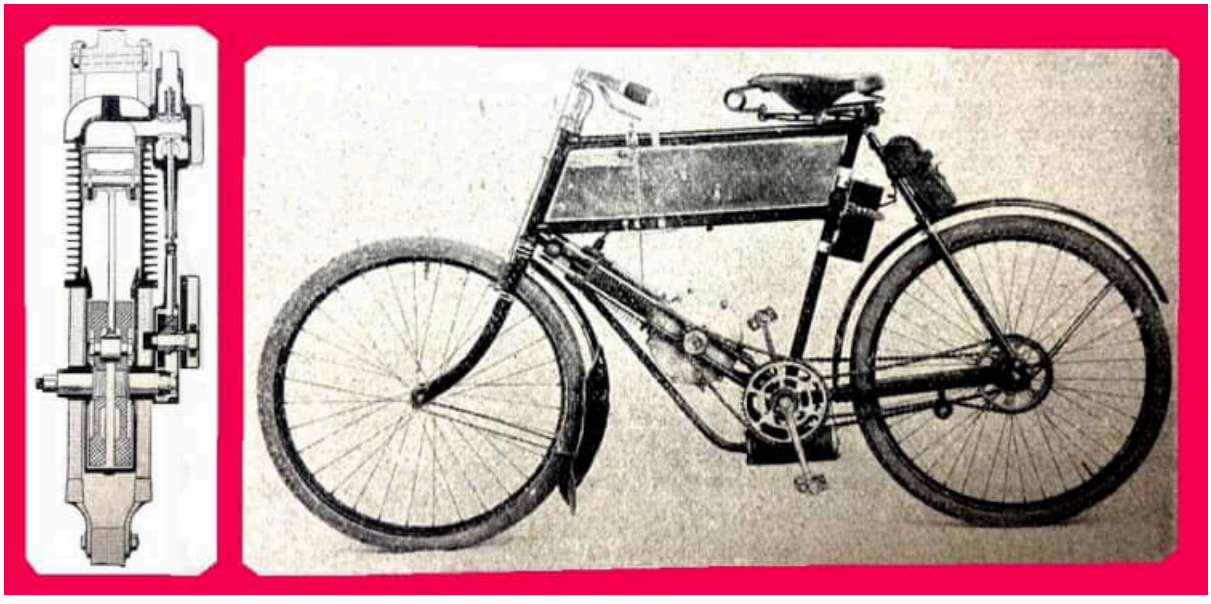
HUMBER OFFERED two models; one with a 1½hp clip-on engine hung from the downtube (described as being on "Minerva lines") and driving the rear wheel via belt drive. The other was made under licence from Phelon & Rayner (later better known as Phelon & Moore) so the 2hp engine (at 1,800rpm) served as the downtube and drove the rear wheel by chain in two stages. They were raced by the work's riders JF Crundall and Bert Yates. In its Stanley Show report, Motor Cycling described it as "an extra strong and rigid machine…a specially good feature is the spring friction clutch to absorb any jerk or shock from the motor on staring…Another excellent feature in an arrangement of pawl and ratchet wheel o. the crank system which allows of the machine being easily pedalled if the rider runs short of petrol….The ignition is, of courser, electric and a trembler is □ðtted to the coil ensuring certain □ðring at very high speeds…The workmanship and □ðnish of the machine is of the highest possible."

Humber built slopers under licence from Phelon & Rayner; the design later became the trademark of Phelon & Moore.

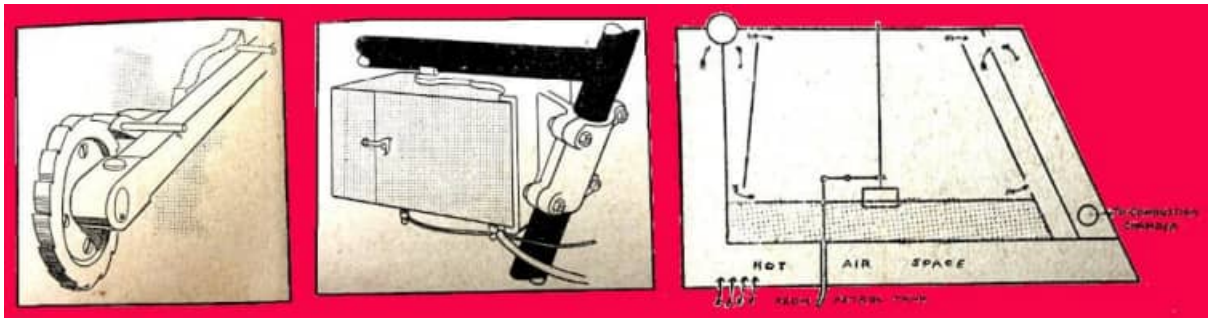
…and here's a technical review of the new model, also from the pages of Motor Cycling:

THE HUMBER MOTOR-BICYCLE.

"THE HUMBERMOTOR-BICYCLEismade by the □ðrmwhichhas long held a leading position in the world of cycles, and the experienceof yearsin building cycles has been combined with the results of studious experimentingwith motors. Humbers pin their faith to chain driving…the advantageswhich accrue from this form of power transmission haveall been secured, whilst its objections havebeen overcome. Theyhavealso adopted the inclined position for the motor, which is carried on the frame in a novel manner. Four parallel tubes spring from just below the head of the bicycle, and continue to a bridge in front of the crank bracket. Thesetake the place of the usual lower tube, and the motor is placed between them. Oneresult is that the weight of the motor is carried between the points of support, and the framework of the machine is enormously strengthened, both lengthwaysand laterally, whilst the further result is that the dimensions of the motor need not be skimped Humbers haveadopted a cylinder bore of 2⅝in with a 3in stroke [266cc]; the engine, running at its best speed, will develop 2hp…The□ðywheels are carefully balanced, the aluminium case servingas a dust cover and as an oil-retaining bath to lubricate the piston…Anoteworthy feature is the distance to which the spring to the exhaust valve has been removed from the source of heat. Thelife and strength of the spring are thus not impaired to anything like the usual extent. Alarge silencer is carried below the bracket, and the heat wavesfrom it and from the cylinder are carried well awayfrom the rider. Chains are used to transmit the power of the engine to the rear wheel, and also for the pedal drive…Thissecond chain is the same length as the pedal drive chain, so that they are interchangeable…Themotor drive chain does all the work, except when starting the machine by the pedals, and when it becomes worn it can change places with the pedal drive chain on the opposite side. Proper means of adjusting the chains are provided…thechain ring on the engine axle is provided with a tension clutch—a disc forms part of the axle,and the chain ring is held by a powerful spring on the outside, tight enough to the disc to enable both the rider to drive the enginefor starting, and for the engine to drive the cycle. But, should any sudden strain occur, the disc and chain ring will slip. By means of the locking rings this slip can be modi□ðedastherider may desire, but its main function is to



prevent any undue strain from snapping the chain. Theintermediate axle through which the engine drives is hollow, the pedal shaft passing through it. A small trip catch is provided on the left hand crank, which the rider can throw in or out of action. When thrown in, it enables him to drive the engine; when thrown out, the engine is disconnected from the pedal drive, and the machine becomes an ordinary chain driven, free-wheel bicycle, because free-wheel clutches are provided on both chain rings on the rear hub. This trip catch is easily changed by the foot without dismounting. The free-wheels permit of the machine overrunning the motor, so that, on down grades, the act of switching oī the current stops the motor entirely, and it is restarted by one turn of the pedals. The front brake lever has in contact with it a little □ðttingintheform of a spring, to which one wire from the battery is brought. Theact of raising the brake leaver breaks the current, and so a most convenient switch is provided. Further raising of the lever applies the brake. The □ðttingisturned over sightly, so as to act as an interrupter. The petrol tank holds a little over a gallon, or suīicient for over 100 miles. The petrol is conveyed through a pipe to the carburetter, the supply being controlled by a needle valve operated by a thumb-piece at the top of the tank. An ingenious arrangement in the carburetter prevents □ðooding. The □ðoat, onrising to the highest permissible point, lifts a lever, which closes the inlet and no more petrol can enter until the □ðoathasfallen…Acuriousfeature is the absence. of a. throttle valve, full supply being allowed to the engine at each suction. The power of this mixture can, as usual be slightly modi□ðedbythemixture tap, but speed is gained advancing the sparking. The compression tap is -dispensed with, as also is the exhaust valve lifter; the consequence is that, when the mixture tap is set, the machine is driven by one lever, plus the brake lever switch. An improvement on the exhaust valve lifter is provided. This device…doesnot permit an explosive mixture to be drawn into the engine, and merely allows the engine to run free. In the Humber the speed lever, when put at its slowest point, brings into action a cam, which opens the exhaust valve at the commencement of the compression stroke. The consequence is that part, and part only, of the charge is expelled, and the compression is eased, but the remainder of the charge is suīicient to start the engine running. It is a very □ðnemethodindeed. The Humber is, consequently an extremely easy machine to start and speeds from 1-30mph can be obtained. Oiling is arranged to be done from the saddle, the oil tank being nest the head, and a small force pump containing one charge conveying the lubricant to the engine through a three-way tap. The coil is provided with a trembler, so that only a wipe contact is needed at the contact maker. The coil in its case is carried in a stout aluminium bracket extending from the down tube. The saddle is carried on a spring pillar so that vibration is nulli□ðed, and the machine is provided with ample brake power. The quality of the workmanship is of the best, and the machine has gained several distinctions, such as the highest award at the Crystal Palace Show for the best British built motor-bicycle, and the silver medal at the Liverpool motor trials. It also won □ðrstplaceinthe recent motor trials , at the Palace."



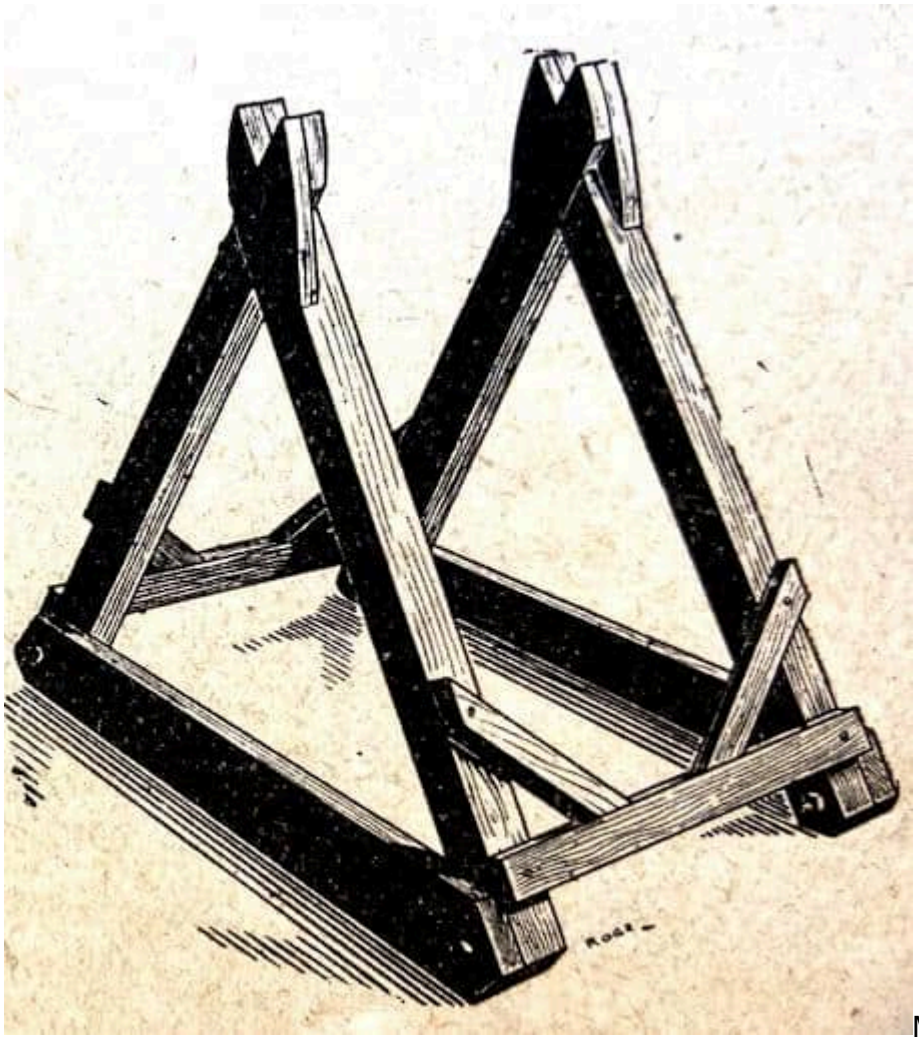
L-R:"Trip catch connecting pedals to engine gearing. Coil bracket. Carburetter section."

“WITHOUTIN ANYWAYwishing to cause alarm or even excitement, we feel compelled to utter a word or two of caution to those who may be about to handle petrol, which to the observer appears about as harmless as water, and which for this reason is so frequently treated with contempt, not only by the ignorant, but by those whose long acquaintance with its marvellous powers should have taught them proper respect. To the ordinarily careful there is nothing whatever to fear, but before one becomes ‘ordinarily careful’ it is usual to have rueful experience of what carelessness can result in. To avoid possible expense of such a nature, we think it would be well worth making thorough acquaintance with the ‘spirit’ at the outset, by, say, placing a small quantity in a saucer, which should be placed in the open, well away from woodwork or anything in□ðammable, and then lighted, but care should be taken to □ðrst□ðx the match at the end of a stick in order to preserve one’s whiskers. There will always be those to whom the mention of □ðre is sufficient to badly alarm, and who make burdens of their lives by taking continuous and elaborate precautions in order to avoid so warm a form of excitement, but such over-careful people are usually those who meet with trouble. Petrol, like most other things, only requires to be treated with common sense, from its storage to its consumption.”

“THE FARMER’S SALVATION. (Our contemporary The Traveller thinks that the use of alcohol, instead of petrol, for driving motors will eīect something like a revolution in the farming business, as this spirit can be readily distilled from potatoes, artichokes, and other things….'”Bless him!” says the farmer, smiling, As he sees the motist come. Here’s the man who’ll save the country! Here’s the man who’ll make things hum! He’s the farmer’s benefactor, And I’ll tell you why he are—It’s my artichokes and turmuts What’s a-driving that there car!’ Sydney J Taylor.”

Prince Albert of Monaco bought a 350cc Humber sloper and used it to make three annual trips to Paris. Following the 1903 run he wrote: “Having undertaken to make the way from Monaco to Paris on my motor cycle, after □ðvedaysoftravel, I failed while arriving at the goal. Hardly 1hr 30min before arriving to Paris, a miserable dog put itself across my road.” Albert was followed by his mechanic who also had a bike, but with a smaller engine. The spannerman usually caught up with his at the end of the day’s run or at the roadside in the case of a breakdown.

“THE STANDWE ILLUSTRATE is the invention of Mr AG Quibell, a well-known North London cyclist, of Pemberton Road, Harringay. It is constructed of teak or other sound-grained wood, and is suīiciently substantial to support a motor cycle and to allow the rider to sit upon the machine and to run the engine. The advantage of being able to start the engine running and then to dismount and watch it in action requires to be tried to be appreciated in full. In no other way can the contact breaker be more perfectly adjusted. Quibell’s stand is made to close up, parting at the apex of the triangle, each pair of uprights hinging at one end of the base. “

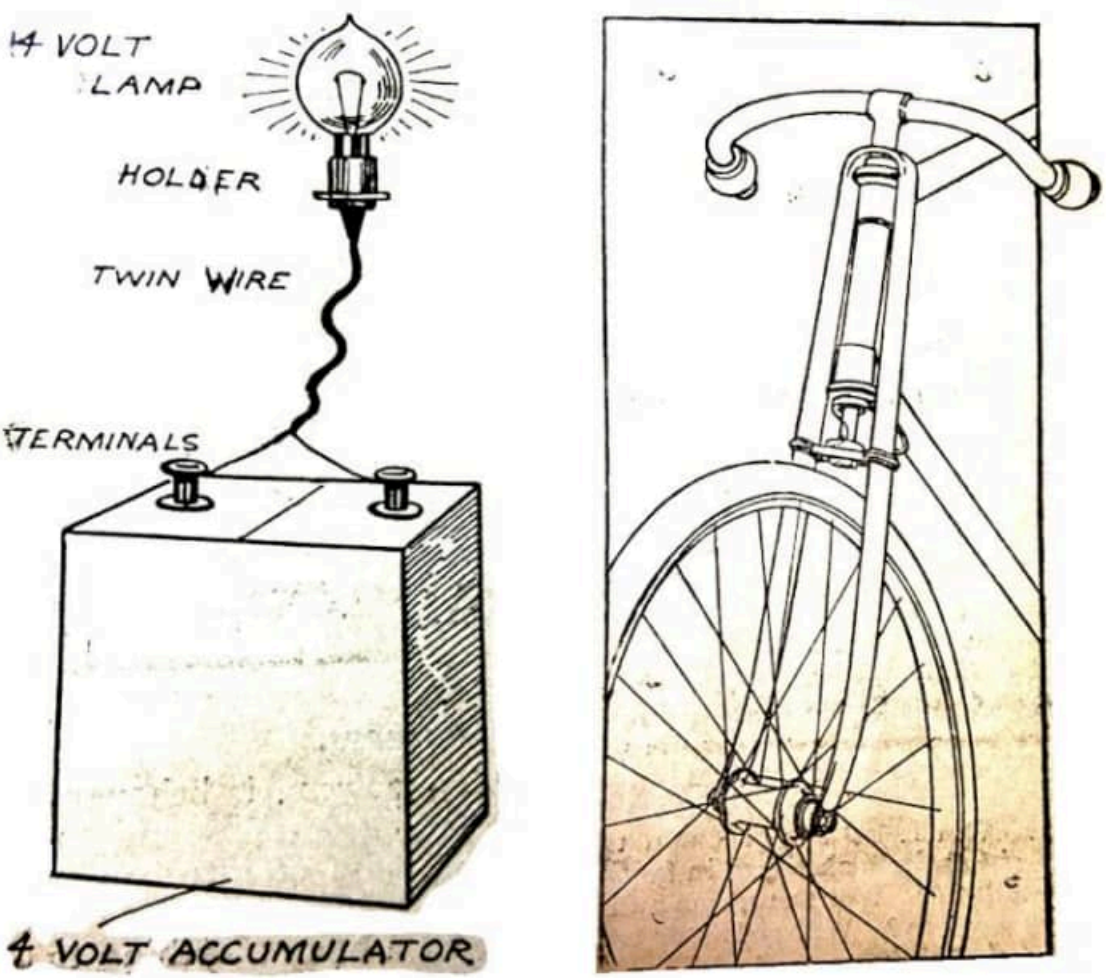


Mr Quibell's folding paddock stand still looks useful. Form, of course, follows function.

"AN INVALUABLE ACCESSORY TO THE MOTOR BICYCLE. One of the most puzzling problems for the motor cyclist at times is how to know whether the accumulator is charged or not. No more reliable means could be adopted than to use a test lamp. It is always stated that an ammeter and voltmeter are the proper instruments; this may be so when they are used by a practical electrician who knows the diïerence between current pressure and quantity. In the hands of the novice they are likely to prove a delusion, and may be the cause of leaving him high and dry on the road with a discharged battery. The test lamp consists of a very small 4-volt incandescent bulb. This must be supplied with a 'bayonet-catch holder, and- a yard of thin □ðexible wire (get this from a dealer in electric light □ðt-tings—don't go to an optician's shop for it, as they are likely to charge .you 10s to 15s; the proper price is 3s 6d to 4s)… Simply connect the ends of the wire to your terminals, and if the battery is charged your lamp will glow brightly; leave on for a minute or so, and if the light keeps up you are tolerably sure your battery has a good charge in; if it dies away to a red-heat your battery must be re-charged at .once. A voltmeter will very often show 4 volts with, a nearly empty battery, simply because the resistance of the coils of the instrument are so high that no current is used scarcely in moving the needles of it. The lamp is also most valuable as a source of light for looking into obscure corners of motor and carburetter where an ordinary light would be dangerous. It is very small and compact, and easily stowed in tool bag.

SOMETHING NEW IN SPRING FORKS. The spring forks we illustrate are particularly applicable to motor cycles. The construction gives great strength combined with an absolutely free

movement in a direction parallel with the rake of the frame. The direction of this movement is most important, as a wheel passing over an obstruction does not receive the blow vertically but in about the direction mentioned. The spring is so placed as to receive the full eīects of the blow, and little or no shock is felt. The handle bars are particularly free from vibration. There is also only one working joint in these forks, and that is where their top is guided by the handle bar stem. The same principle has been applied to the rear of a cycle frame in a way which does not aīect the driving in the least. These anti-vibratory devices have been patented by Mr GE McCrea, whose address is: c/o The Sturtevant Engineering Co, 147, Queen Victoria Street, London, from whom all information may be obtained.



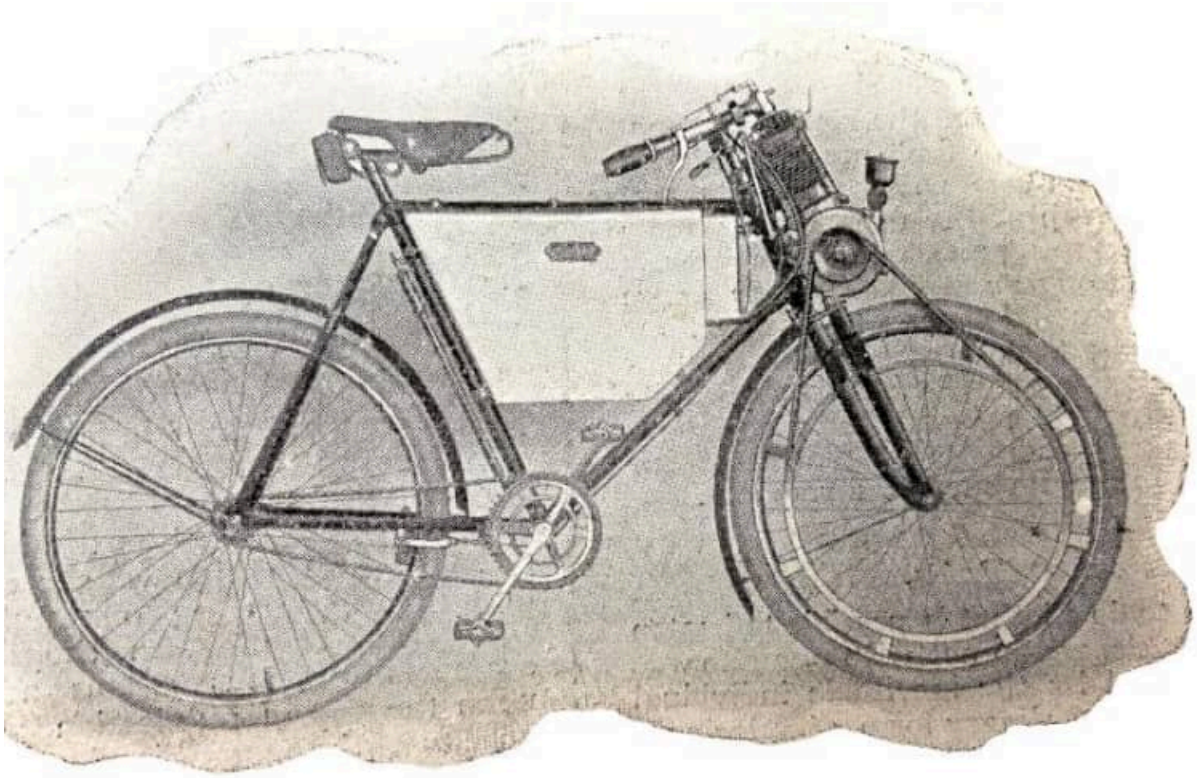
L-R: "A handy accessory. Something new in spring forks."

"THE MAN WHO WAITS. Whilst it is our intention to do all that is possible to hasten improvement in the motorcycle, we do not wish our remarks or opinions to be misconstrued by the inevitable individual who, from the inception of the ordinary form of velocipede has gone through life with the □ðxed intention of 'waiting a little longer, as great improvements are being made and prices are coming down'. Many a man has allowed his best years to roll by in this illogical. manner, and has entirely deprived himself of participating in many a pleasurable pastime or pursuit. What can be more enjoyable than top take a comparatively crude idea of great promise and watch its progress towards perfection? To our mind the motorcycle aīords an opportunity in a thousand, and many of those who at this stage take advantage of it will in course of time surprise their friends and themselves by developing into experienced engineers or experts and be able to apply thew knowledge engineers or in directions hitherto unthought of.

To the man who requires to be carried about front place to place as if he were a mere sack of coals, we at once say, 'Don't touch motoring at all, your intelligence will be unduly strained and you will be much happier in your cab, 'bus, or train.' But, living as we do in a mechanical age. we are not far wrong in assuming that the averageindividual is more than equal to following the development of such a comparatively simple piece of machinery as the motorcycle, and is certainly more than equal to enjoyingthe unlimited scope for easytravel which it aïords. Therefore we are justi□ðedinadvisingthose who 'waiting for improvements' to abandon the bad habit and, if they can aïord it, to take the plunge, purchase a machine and participate in the unlimited pleasure obtainable from being able to follow discussion and development."

"AGAINSTBIGPOWERS.Withthe air full of talk of high powers, it behoves the cautious rider to be moderate in his aspirations and to be determined in his resistance to the wiles of salesmen with heavily powered motor bicycles to sell. Themachine with a motor developing 2¾ or 3hp is not a mere plaything to be lightly taken in hand by the novice at motor management. Rather is it the vehicle for the expert, for the man who desires to shine on the race path or to cut a dash on the road. A cycle with a 1½hp motor can travel, under favourable circumstances, at 25 miles an hour, with a minimum of about □ðvemilesanhour,though, of course, this speed can be still further reduced by intermittent □ðringorbyentirelyshutting oï gas occasionally, and it seems reasonably obvious that a machine capable of doing this touches the limit of recommendation. We strongly urge him to whom this sport is new to start modestly with the low-powered vehicle, to learn all its good and bad points, to become thoroughly familiarised with its working and management and then, when knowledge has been acquired from practical experience, the next step to the bigger powers can be taken with con□ðdenceifthe change is justi□ðed.Moreover,the owner of a 1½hp cycle need not be ashamed of the speed capacity of his mount, for the recent speed tests at the Crystal Palace showed that the higher powered vehicles were, in comparison, very little faster, and against this they are much more unwieldy—rather an important point when stabling the machine."

THERALEIGHCOMPANY,afterlong and careful experiment, have adopted the Werner' front-driver type of engine. Thecompany maintains that this motor is in the best possible position for cooling, out of the: way of dirt, and the weight is more equally distributed over the machine, than is the case with other types where both the rider and engine are weighted on the back wheel. Theengine is controlled entirely from the handle bar, and it is not necessary to remove one's hands therefrom to manipulate the motor in any way. Adjustment is provided for the driving belt, and special lubrication for running the motor up to 100 miles, without a stop, is provided. Thecompression tap is dispensed with, and an exhaust valve lifter □ðtted."

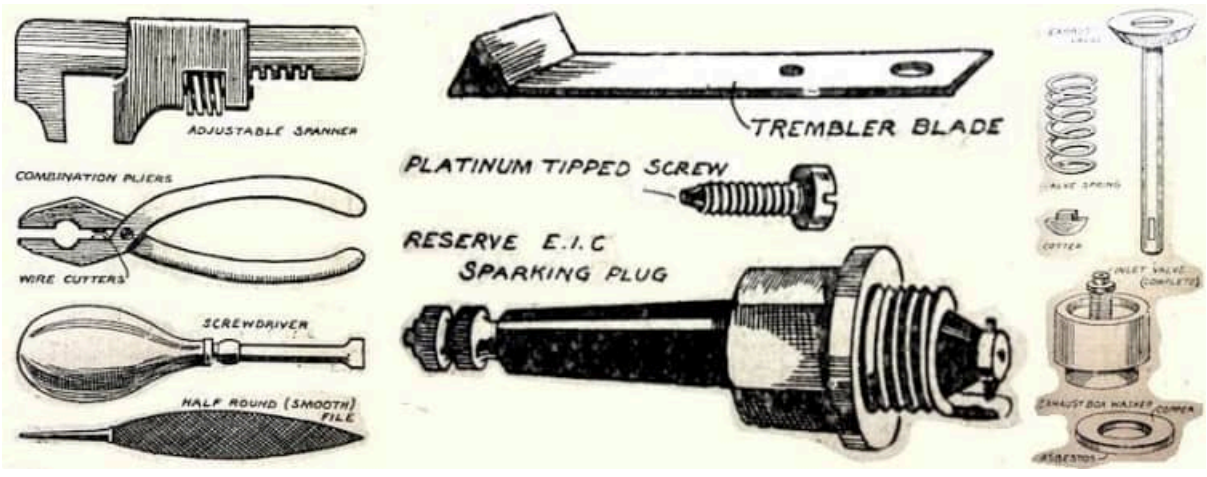


"The new 'Raleigh'."

"TOOL BAGEQUIPMENT.Thissubject requires careful consideration, as upon having the necessary tools, □ðtmentormaterial at hand depend the possibility of eīecting a repair. Now, in the □ðrstplace,it is important to have a good-sized bag or valise. This need by no means be clumsy; in fact, the best accessory makers have already solved the problem of being able to supply a tool bag at once roomy and compact. Thenas to its contents—here is a complete list suitable for executing all repairs capable of accomplishment on the road: (I) A good, adjustable spanner; see that this opens out to the size of largest nut on the motor; avoid one having 'soft' jaws; pay a fair price and get a.well-tempered one; (2) A pair of light 'combination' pliers having wire cutters and tube or nut grip—such as the footprint pliers; (3) A small but strong screwdriver, with the blade well tempered—broad and sharp; (4) A small oil can with tight □ðttingstemand cover to hold petrol. and larger oil can for lubricating oil; (5) A small □ðat(mediumcut) □ðle(6)A very small dead-smooth half round and □ðat□ðle;(7)AyardofNo 16 copper wire; (8) 2 feet of asbestos string;. (9) A few inches of 1/16inchthickasbestos sheet; (10) A foot of rubber 'insulating' strip ½ inch wide; (11) A small piece of marine glue; (12) A good tyre repairing out□ðt; (13) A strip of pliable leather ⅛ inch thick. Also remember it is advisable to obtain these duplicate □ðttings:onespare sparking plug (if yours is a genuine De Dion have an EIC plug in reserve, or vice versa);. one spare exhaust valve, with its spring and cottar, one trembler blade and platinum tipped screw, one washer for exhaust cover (the inlet valve does not go wrong often, but it would be well to have an extra spring, washer and split pin if not a complete valve), one extra belt fastener, a few spare nuts for the various jointed rods (as these sometimes come loose with vibration), and a small spare 4-volt battery can be strongly recommended as a reserve supply of current. Some enterprising makers of storage cells have recently brought out such a, battery, having a capacity for charge equal to 25 or 30 miles; they are very light and compact, and well worth carrying on a few days' run or tour. The above list may seem a very long one; but really the things take up very little room and all except the last will easily go in a square valise 7 inches wide by 4 inches high by 2 inches deep."

“IMPORTANTPOINTSTOBEremembered if mishaps are to be avoided. 1—Keepthe accumulator up to pressure and avoid the damaging practice of ‘□ðashing’theterminals with a piece of wire or the point of a knife. 2—Seethe platinums are clean and well adjusted on trembler. 3—Attend to the belt (dress it with castor or cotton oil). 4—Havethe exhaust valve well ground on its seat. 5—Don’t use petrol that has been exposed to the air. G—Keeptyres hard, and repair surface cuts to avoid a ‘burst’. 7—Ifyou can’t manage the electrical adjustments get the advice of a competent motor electrician. 8—Toavoid slipping on greasyroads, reduce your speed, and steer wide when rounding corners.”

“WHAT A STOPPAGEOFMOTORmaybe due to. The following are some causes in order of probability: 1—Sparkingceases,either from contact breaker out of adjustment, a short circuit on the wires, oil on platinums, porcelain of plug cracks, sparking wire inside porcelain loosens, battery may be exhausted, a bad frame contact somewhere, a broken wire, platinums burnt or loosened, oil or carbon on sparking wires. 2—Petrolwill not evaporate quick enough, due to poor quality, or on a cold day even the best petrol may fail, or supply pipe to carburetter may close up. 3—Sparkinglever may have worked back to a retarding position. 4—Piston may get fast in the cylinder, due to want of, or perhaps too much oil. 5—Exhaustvalve may lengthen slightly and refuse to close its its seat. 6—Overheatingmay occur through a bad proportion of air and gas. 7—Ajoint may give at the inlet valve. 8—Exhaustvalve spring may lose its ‘temper’ by heating and not pull down the valve sharp enough. 9—Exhaustvalve stem may bend slightly and jam in its guide or bearing. 10—Inlet valve stem may break through at the cottar slot. 11—Motor axle may bind in its bearings through excessive friction. Serious breakdowns may be due to: damagedpiston, piece broken oī, or the rings may have worked out of position; connecting rod or gudgeon pits work loose from inside piston; crank pin loose in its bearings; key-way for pulley may strip the shaft, or it may come out if the nut slacks oī; pinion wheels for two to one shaft may have a damaged tooth; exhaust valve lift bent or locked in its guide. So far, these faults are con□ðnedtothemotor itself. Theinduction coil, of course, may spring a leak, an inside connection may break, or the condenser get perforated. Repairingthese is quite beyond the amateur’s capabilities.”

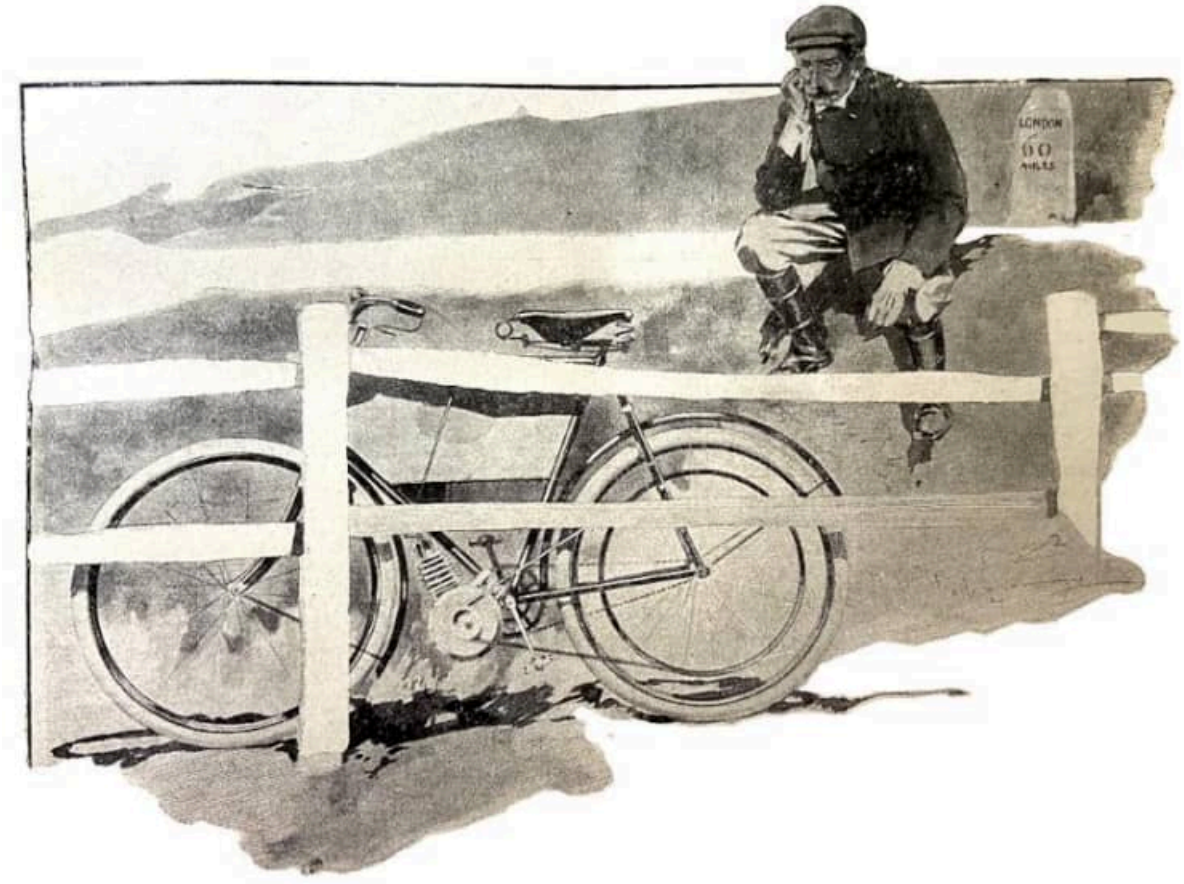


L-R:“Tool bag equipment: some indispensable tools. Theseshould be carried in reserve. Further duplicate □ðttingsreferredto in the text.”

“IN ATTEMPTINGTODRAWde□ðniteconclusions from the chaos of inde□ðniteexperiments already in our hands, it is well to consider the most important factor, ie, the future motor cyclist. Will he become something of an engineer, even an expert, or is he to be simply regarded as the controlling or steering element of an absolutely reliable and eīicient machine?…Acentury ago

when the horse was the most convenient means for quick or individual transport, the average man knew a vast deal more of horse □ðeshinallshapes and forms than he does to-day…Again, as pneumatic tyres and the improved bicycle made this once despised instrument a practical and safe vehicle for most of us, the common knowledge of its various ailments increased until the boy in the street and averageschool girl could repair a punctured tyre and adjust a bearing—things at one time of deep mystery even to the expert mechanic and rider…Whatis it we are all calling for in demanding increased 'eīiciency, reliability, and simplicity' in our future machines? Take as our □ðrstexamplethebicycle. What could have been more simple than the dandy-horse. Watch its development into the tall bicycle of revered memory. Added eīiciency was certainly gained by introducing cranks, at the obvious loss of simplicity. Then came ball bearings, and again a higher eīiciency was attained, with distinct loss to the other two factors. Againwas the machine metamorphosed and we had the safety bicycle, and added chain and crank bracket—thus once more was eīiciency gained at the expenseof simplicity. And then the crowning improvement which has really been the salvation of both bicycle and cars, to wit, the pneumatic tyre. This, which increased the eīiciency of the bicycle perhaps 50%, is most likely the least reliable part of the bicycle and motor, and certainly not the simplest. Remembertoo, that by eīiciency mere speed is not meant, but greatest economy for given power, and surely this is the hidden end of all we mean…Thelocomotive, mining machinery, and the mills all tell the same tale…Letus turn to the question of form or structure. We may be assured that the machine will be of a single-track type as this is far more eīicient than any other: We may also take it that the steering will be much as at present, at least in general arrangement, as this has been well proved up to very high speeds, and is all that can be desired at low ones…Arewe to have a saddle or a commodious seat ? This depends much upon whether the pedals are discarded or not…thereis very little indeed to guide one at present, for there are both patterns on the market…Nowmy experience has taught me that the most dangerous factor in a single-track machine is excessiveweight. All the early machines erred on this point, and one has only to spend a minute with anyonewho has had experience of those early eīorts to learn that weight was their most fatal point. As machines became lighter pedals and chain were added, because the former make good foot rests, and save one from being cramped by the facility with which occasional movements may be made…theirconvenience is so obvious that it is unnecessary to dilate upon it…Last summer, I was riding between Barnet and Hat□ðeldonmy'Bluhm' motor (weight 130lb). On our return, about eight miles from the latter place, the crank broke, the engine at once becoming useless. Knowing what had happened and seeing how unavailing it would be to dismount, I pressed the clutch which disengagedthe engine and pedalled those eight miles in something under 45 minutes. Of course the run down Digswell Hill accounted somewhat for this good averageon so heavy a mount. I contend that however perfect and reliable we may make our motors, accidents of this kind will always occur, even as they do on railways and steamships. One may go for years without such, but when it happens, how much one values the convenience of being able to get quickly and expeditiously to a resting place for the night or a depot for repairs. Not only is the pedalling arrangement invaluable from that point of view, but one □ðndsitagreat convenience at times when it is not expedient to run one's engine…However, the pedalling gear…mustbe subservient in its position and proportions to the best placing of the motor itself. If we were discussing a motor-assisted bicycle the reverse would obtain, but it is becoming apparent that the motor-propelled bicycle has a larger sphere…Thesecondarypropelling medium must give way to the primary in points that aīect their mutual eīiciency. For instance, take the □ðrstMinervadesignedtooccupy ordinary bottom-bracket space. Thebearings of this machine were much too narrow, valves and piston were also inadequate for a motor.bicycle, and for a motor-assisted bicycle it was too heavy. But…the

eïiciency of a motor for a given power, or petrol consumed, is also largely dependent on the inertia and resistance of the mass propelled. We must reduce weight to the proper level consistent with safety and convenience…Letus make a resumé of our conclusions. So far very little progress has been made towards a complete machine (the bicycle of the future), but we have □ðrstourwheels, next probably pedals and then the engine position undetermined, having 'outside' □ðywheels.Shallourmotor be air- or water-cooled, vertical, inclined, or horizontal? Thereare reasons by which air-cooling on a bicycle is more perfect than on a tricycle, and as a slower running motor may be used let us assume it is also air-cooled. Themultiple-cylinder engine has, doubtless, a future, and it may be that both types will develop side by side, even as we see in cars to-day. It is better, perhaps, to deal with these later, and proceed to evolve our standard type of single cylinder. Now it is position that claims our attention. This involves a double issue, viz, position in frame of motor and the position of the motor 'per se'…Scarcelytwo motors follow the same line. But it is well to recollect that there must be a 'best'. Now to help us to decide, we may turn to existing practice in high-speed engines of all types, where space is a consideration, and at once the vertical is 'en evidence'…thereareany arguments for every position, but the matter of lubrication and balance seems to favour the vertical…Mors,of Paris-Berlin fame, adopts this arrangement on all his large cars. At the recent Crystal Palace show, too, the vertical engine was much in evidence in all cases where the frame and motor had been designed in combination. It is hardly necessary to point to the New Werner, the Chapelle, the Rex,Precision, Vipen, King of Cambridge, and others. The Humber, I think, endeavours too much to follow the usual bicycle frame, and my experience of long-stroke motors for cycles is not very favourable. It is well to remember that length of stroke means piston speed, which is obtained in a short-stroke engine by its adaptability to run faster. It is a moot point, and I should welcome a keen discussion on it. Now for the position of engine in frame. This will be determined partly by what transmission is used, partly by convenience regarding other □ðttings. Somewhereabout the spot now occupied by the bottom bracket seems at present to be favoured, and it is interesting to observe that nearly all the early motors were so placed, which seems to show that their designers and makers saw in it obvious advantages. Daimler's bicycle, Shaw of Crawley, Bluhm, and others recently illustrated in these pages demonstrated this…Somemakers, in speaking of where they placed their engine, and talking of the centre of gravity being high or low, forward or back, appear to me to have overlooked the simple fact that the position of rider really determines the centre of gravity."



“What a pity I didn’t put Motor Cycling’s list of ‘possibles’ in my pocket!”

“MOST OF THE BEST cycle □ðrms now catalogue a motor bicycle, and their work as regards the frame, wheels and bicycle part of the machine generally may be. depended to be of the best possible construction. With the motor itself it is possible to apply a few simple tests which will show if it is in an eīicient condition; one is to try the ‘compression’, this will show the accuracy of the □ðt of the piston and valves. Simply remove the belt and turn the motor pulley about twice round, if the compression tap is closed this should prove rather diīicult if all the valves and all connections are good. Then he can try the □ðt of the crank axle in its bearings by opening the compression tap and turning the pulley round a little at a time, there should be no trace of ‘binding’ or signs of the axle being tight in one position and loose in another. A small amount of ‘end’ play is allowable, however, the true alignment of motor pulley and the wheel pulley is rather important; to try this take a length of twine, holding the outer edge of motor pulley and carry: it across the face of it towards the farther end of the wheel pulley, then stretch it tightly and allow it to just touch the inner edge of motor pulley, the other end of the twine should pass along the outer edge of belt groove if the lining up is accurately done.”

“HOW TO TELL when a serious mishap ‘to interior of motor has occurred. This will invariably be evidenced by a violent knocking sound in the crank chamber, or the whole mechanism will suddenly ‘lock’ or jam and resist all eīorts to move it. In a remote contingency of this sort happening on the road it is worth while to remember that the motor can readily be unbolted from the machine, and if near a station it could be sent home by rail, and the machine itself ridden as an ordinary bicycle; there would thus be 25 to 35lb less weight to pedal.”

“WITH A MOTOR driving the bicycle the speed-value of light air tubes is of little consequence—freedom from puncture and hard wearing qualities are what is required. Here then is a good □ðeld for the self sealing tube.”

“A SATISFACTORY TAP for emptying the carburetter has yet to be invented. Taps are seldom petrol tight.”

“THERE IS NOTHING better than petrol to clean the sparking plug, brushing with an old toothbrush. Stale petrol is equally eīective.”

“LONG LEVERS TO GAS and mixture taps permit of a very much □ðner adjustment, and ensure better results in driving than do the short taps usually □ðtted.”

“NEVER start without □ðrstinjecting a few drops of paraīin into cylinder through compression tap. Only a few drops, mind, or you may foul the sparking plug points. Never use petrol for this as a substitute; it is of too drying a nature and will only make it more diīicult to start. The slight lubricating properties of the paraīin dissolve the gummy oil around the piston rings and cause the piston to slip easily up and down the cylinder. Allow a few seconds for the paraīin to get down.”

“MANY OF THOSE present at the meeting of the Motor Cycling Club expressed surprise that the Mitchell motor bicycle did not □ðgure in the events, although it was well known that this pattern had done some very smart times in the States. The facts were, so we learnt on the ground, that riders of the Mitchell had already entered and were present, but the entries had been received too late by the Hon Secretary. We hope to see them □ðgure in the next □ðxture promoted for motor bicycle contestants.”

“THE MANCHESTER GUARDIAN cycling noter is rather severe on Mr J Pennell when it describes him as ‘going through the motor cycling novice’s experiences one by one’, and not quite just, as it is nearly two years since he made his □ðrst, disastrous attempt to cross France on a Werner. It was in September, 1900, that one of ours interviewed him, still covered with dust raised in his second victorious attempt on the front driving pattern. He also scoīs at Pennell’s advice to sit low so as to allow of the possibility of braking a runaway by placing the feet on the ground. It was, however, in this way that Pennell saved his neck when his handlebar gave way in descending the precipice into Ambleside.”

“DESPITE THE RATHER INCLEMENT season, motor record breaking is being kept up in France. The latest aspirant for honours is Osmont, who. went for the 100 kilometres (62¼ miles) motor cycle road record on Tuesday last on a □ðne stretch of road around Paris. He succeeded in covering the distance in 1hr 16min 55sec, averaging neatly 49 miles an hour, which is remarkable when one bears in mind the fact that Osmont had to ride in heavy rain and over drenched roads. His mount was a new De Dion 8hp motor tricycle.”

“A FRENCH MOTOR BICYCLE is on the stocks capable of covering 75 miles an hour, so it is said. But we wonder if anyone could be found willing to mount it—and manage it.”

“ONE OF THE EARLIEST motor-cyclists in the Potteries was Mr Harold K Hales, of Burslem, whose initial struggles were made with a Beeston tricycle □ðtted with an alleged 1¼hp engine and lamp ignition. Those who know the hilly nature of the surrounding district can appreciate Mr Hales’ perseverance. He is now more ambitious, and will drive an 8hp ‘Progress’.”

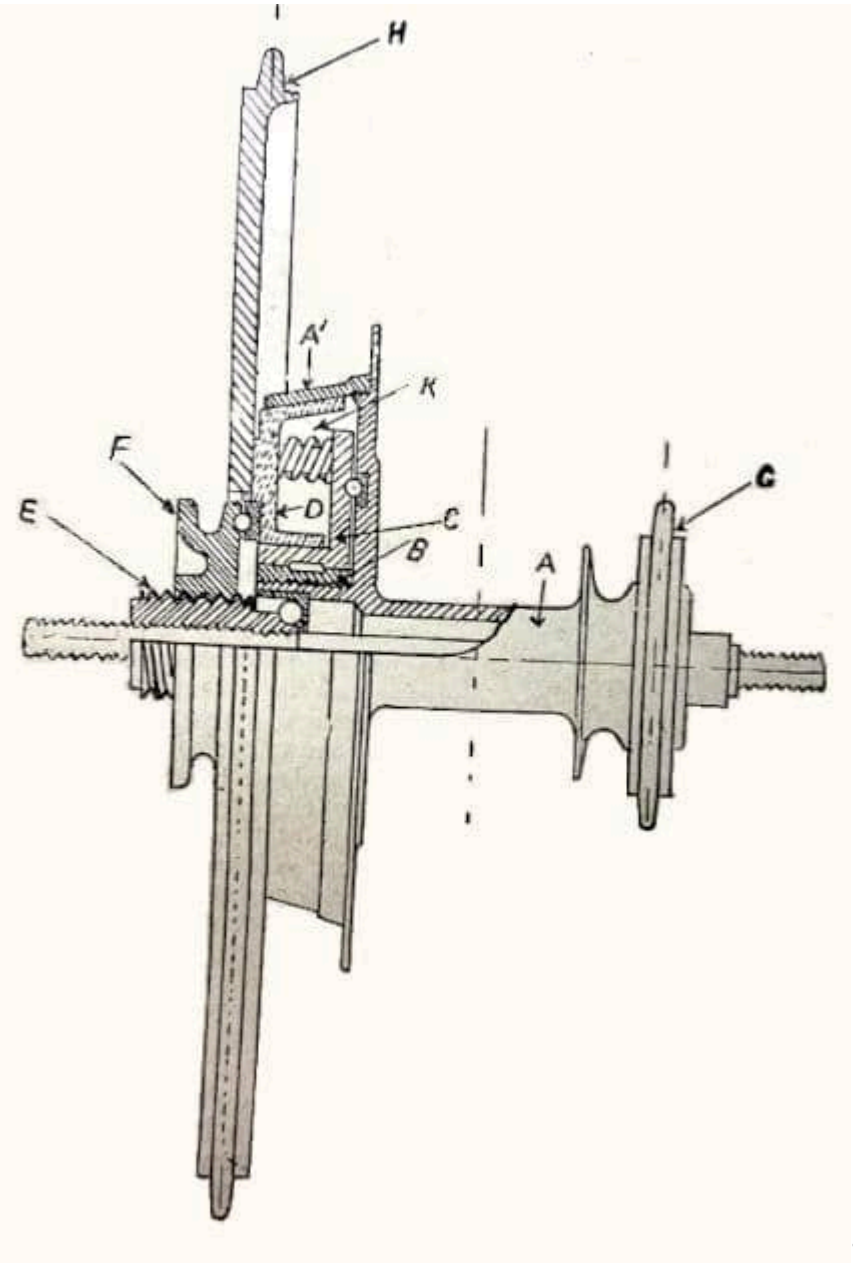
THE MOTOR BICYCLE; HAS IT COME TO STAY?

By G. LACY HILLIER.

"IN CYCLING CIRCLES MR HILLIER may be numbered among the 'old guard', and □ðgurestherein most prominently on matters pertaining to the sport and pastime. He holds strong views on many subjects; is part author of the 'Cycling' Badminton, and has written several books on cycling topics. That he has studied motor questions will be seen in the following article: 'The question: Has the motor-bicycle come to stay? is best answered by another: Is it wanted? and the answer to the second question must be sought by considering the conditions obtaining. Bicycle riding has been a pastime for some 30 to 35 years, steadily increasing in popular favour, and happily emancipated from the cad-on-castors slur of same years ago. The cycle is now recognised as a convenient means of locomotion by all classes. There are, therefore, a vast number of cyclists who have more or less relinquished riding in the old fashion for reasons which, like Mr Venus's bones, may be described as 'warious'. From some of these riders in the past came a bitter cry for some 'auxiliary power' to assist them in the propulsion of their vehicles, and in response thereto ingenious, if misguided, inventors supplied them with Euclidean accelerators, levers, □ðywheels, gears, Simpson chains, and various wonderful contrivances to store up power down hill, which was, in theory, to be available to assist them in climbing, the next ascent. Practically only one invention really helped them—the pneumatic tyre ; and how many cyclists who had practically given up riding were restored to a state of enthusiastic cycling juvenescence by that contrivance it would be diīicult to say—but it must have been a very large number. Now, once again, a point has been reached when a very large number of riders have to some extent lost interest in the sport, due to exaggerated gears, in many cases without doubt, and in the motor-bicycle we have exactly the panacea for this malady, whether it be the result of increasing years, or gears, or sheer indolence. The smaller motors provide exactly what the riders of some years back were asking for—auxiliary power. It is, of course, a drawback that this power is decreasingly eīective as the machine slows upon a hill, but, on the other hand, an occasional spell of hard pedalling will not be unwelcome to a rider who has sat motionless along the level. The speed generally will be faster than that of ordinary cycling, with a correspondingly exhilarating eīect, and there is much to interest the rider In the skilful management of his mount. Thus I expect to see many a rider long missed from the haunts where cyclists most do congregate once more frequenting them, and no doubt a lot of new-comers will also take to the auxiliary-assisted cycle. In fact, I personally do not doubt that 1902 will be remembered as the motor-bicycle year, and that □ðrms making motor-bicycles will □ðnd that department of their business largely increased before the season has long been open. Further, I think that this type of cycle has come to stay—of course it will be greatly improved and perfected; no doubt the motor-bicycles of to-day will be regarded as 'old crocks' twelve months hence, and also, doubt, they have defects. It is said to side slip; as I did not say so □ðrst, possibly the fact may be admitted. Pneumatic tyres do slip occasionally, not only with cycles but with cars, but a very great deal depends on the rider; old high-bicycle men appear to suīer less from side-slip on the ordinary cycle than other cyclists, doubtless because to ride the high bicycle was a constant lesson in body balance, a matter I have dealt with in 'The Art of Ease in Cycling', but the motor-bicycle must be regarded as in some degree a □ðne weather machine… The motor-bicycle, in fact, creates a new class of motor users, and a very large class too. For one man who buys a car costing hundreds of pounds, possesses storage for it, and keeps a driver in his employ, how many men are there who can aīord to buy a motor-bicycle? Some of these men may in time become car owners; but the larger number will remain motorcyclists, keen only to possess the latest form of their chosen machine. It is clear that the motor-bicycle, in classic

phrase, □ðllsalong-felt want. That it will □ðnditsown □ðeldandretain it, that cycle making □ðrms with a reputation for sound work who take it up will □ðndthatitbrings grist to the mill, that it will induce many riders to again take an interest in the sport, and bring in many new men—in short, that it has come at just the right juncture, when the trade outlook is improving and enterprise reviving, to secure careful consideration, and to assist in the general recovery by broadening the □ðeld.Isupposel must say something as to motor racing, the more so that practically every notable improvement in the bicycle from its earliest days has been tested, perfected, and demonstrated on the racing path. 'Spider' wheels, ball bearings, high-ordinary, safety, pneumatic tyre, and the reduction in weight of bicycle, tricycle, and safety were all so tested, but, though doubtless path tests, where conditions are approximately constant, or can be gauged, will play a large part in developing the perfect motor-bicycle, I hardly think that motor racing, as racing, will become popular. Variations in the power of the motor or the skill of the driver usually result in one machine being so obviously superior to the others that, barring accidents, the result of the race is a certainty and it is diīicult to see how the interest is to be maintained. As to motor pacing, this, if permitted, would once open the door to the old scandals, which, apart from question of the danger, would quite outweigh any bene□ðtstobe derived from its introduction, and the men who failed to □ðndadequatepacinglast year might fail secure adequate motor pacing were it permitted, unless submitted entirely to the dictates of some employee of some trader who has wares to advertise. My conclusion is that 1902 will see a boom in motor-bicycles, and that they have come to stay.'"

"TO THOSEWHOHAVEtank carburetters I would ask: are you sure that when you pull down the handle of mixer, you do not thereby shut oī the supply of gas?It has been so in my own case. To remedy this, take oī the handle and □ðlethewaydeeper—sayabout a quarter of an inch. A little study of the matter will show which side requires □ðling.Thiswillallow the handle to be brought right back, which is required sometimes without sti□ðingthesupplyof gas going through to the engine. Bene□ðtsaccruingfromthis: saving in petrol, better mixture, clean valves. It sometimes happens that the carburetter becomes choked up. To clear, □ðtawoodcork into the chimney, drill a hole in the centre and □ðxanordinarytyrevalve and attach pump. A few strokes should clear out all obstructions. Water or petrol may be used to wash out the tank. If the valve which supplies the petrol to the carburetter should rattle, and through rattling supply too great a quantity, which it is liable to do when one is riding at high speed, cut a section about half an inch wide oī an old air tube. Slip this rubber ring under top tube of bicycle, over head of valve, and over stopper of petrol tank. Care should be taken that the inlet valve when open to its fullest extent does not foul the sparking plug, as when this happens the points become knocked together. This can he prevented by putting on a thicker or thinner washer under plug shoulder, causing points to assume a diīerent position in explosion chamber.
Yours faithfully, **T CONINGHAM**."



TheBowdenfriction clutch.

“AMONGSTTHEMANYEFFORTStointroduce a reliable method of chain driving, the Bowden friction clutch has attracted a verygreatamount of attention. It is illustrated in the accompanying diagram. On the large □ðangeofthehub A, is □ðxedanexternalfriction cone A1. Thegun-metal friction cone D has □ðxedtoitthe chain wheel H, which receives the power from the engine.Friction cone D is normally kept up to its work by the spiral springs K, four of which are carried on the collar disc C; on the boss of the latter there are also three featherways on which the cone D slides. Thegroovedpulley F can be rotated by means of the Bowden wire mechanism, the coarse thread on the □ðxedconeEcarryingthe pulley inwards when it bears (through a ball bearing)on the friction cone D, forcing the latter out of engagementwith the external cone and consequently the hub. Thusa free engine is provided, the bicycle becoming a free-wheel machine capable of being pedalled as usual. Thisis a great advantagein thick traī ic, or when descending a long hill, as in the latter case wear and tear of motor and waste of petrol and electricity are avoided, and both pedal and motor chains are at rest. In starting the bicycle, the clutch is thrown into the free position and, when a fair pace is attained, the double-action

Bowden lever rotates the grooved pulley and allows the cones to gradually engage. In the case of a back-□ðre the outer cone will slip on the inner one, chain breakages being avoided. The Bowden Patent Syndicate assert that on the same machine and with the same motor, an improvement of 30% over the belt was eīected by using the chain drive."

"WERE IT POSSIBLE for me to go about amongst the readers of Motor Cycling I should, a doubt, □ðnd them agreed on one point—the need for ample brake-power. Ne'er a single one would be discovered who would dare to scoī at the necessity. And yet we □ðnd, in many instances, that makers of motorcycles have given very little heed to the matter. Two brakes, they think, should be ample (some concerns seem to think that one is suīicient), and those which are most readily □ðtted stand the best chance of being used. Thus we □ðnd □ðim sy front rim brakes on a very large number of machines oīered for sale, whilst the height of ingenuity consists in the □ðtting of the Bowden brake to the rear wheel. As if, forsooth, the hands of the driver have not enough to do—as if the brain did not already have to transmit a superabundance of impulses to those useful members!"

"The art of ease in—towing."

"SIR,—I SHOULD BE glad to know what is the meaning of the term horse power. We in our club notice this expression keeps appearing in all sorts of ways, such as 'on the brake', 'nominal', 'actual', &c. A de□ðnition of each term would be welcomed by many.
CSG
[We have an article on the subject in preparation.—Ed Motor Cycling."]

"SIR,—I GATHER THAT you do not care to assert which is the best motor bicycle, but I see you have other readers besides me who would like to acquire that information, and I hope you may

try to accommodate them. Perhapsyou will suggestthat some of the marts, where motor-bicycles are sold, should provide a space where intending purchasers could resort, so as to test the motors before selecting or buying one. I bought a motor bicycle in 1900 and another in 1901. I understood they were the best, but I found no one who could make them go any reasonable distance, and I should like one that will travel its thousands of miles without more trouble than the safety bicycle entails, which consummation makers seem to promise, but leave it to their customers to evolve, if they are capable of discovering in what way it can be done.
JA
[We had written an editorial on instruction and testing schools, &c, strangely enough, before the above letter came to hand. Our correspondent and many others should follow closely the important article which starts this week upon 'The Motor Bicycle: what will it become?'—Ed Motor Cycling."

"SIR,—OURATTENTIONHASbeencalled to an article in your edition of February 26th, written by Mr. Anthony Westlake, in which he criticises his experiencewith the 'Mitchell' motor-bicycle. Of course the motor which he had was one of our earliest models, and Mr Westlake's idea was to get a speed of say 40 miles an hour out of it. He therefore tried it on the track, and although it easily did 25 miles speed, it was not built for racing, but was an ordinary roadster. We have machines which are capable of doing 40 miles an hour if properly adjusted, but these are quite impractical for ordinary riding, as it takes a rider of no mean ability to keep a bicycle on a track going at this speed. On this fact Mr Westlake bases his assertion that the □ðywheelsaretoo light. We can only say on this point that the 'Mitchell' engine is designed by Mr Pierce, the best known American maker of gas and petrol engines, and as he undoubtedly tried heavier □ðywheelswe can only come to the conclusion that he did not approveof them. As regardselectrical arrangements, of course we supply accumulators if customers desire, although in America no one would use these. As regards losing power, the transmission of driving pulley to back wheel: if proper belt is used there should be no loss of power, and we claim that since we have used our own twisted gut belt the loss of power is reduced absolutely to a minimum; and it is certainly agreedamongst makers of motor bicycles that a certain amount of 'give' should be allowed, to conduce to the safety of the amateur, who is, after all, the greatest user of a motor bicycle.
Davis, Allen and Co."

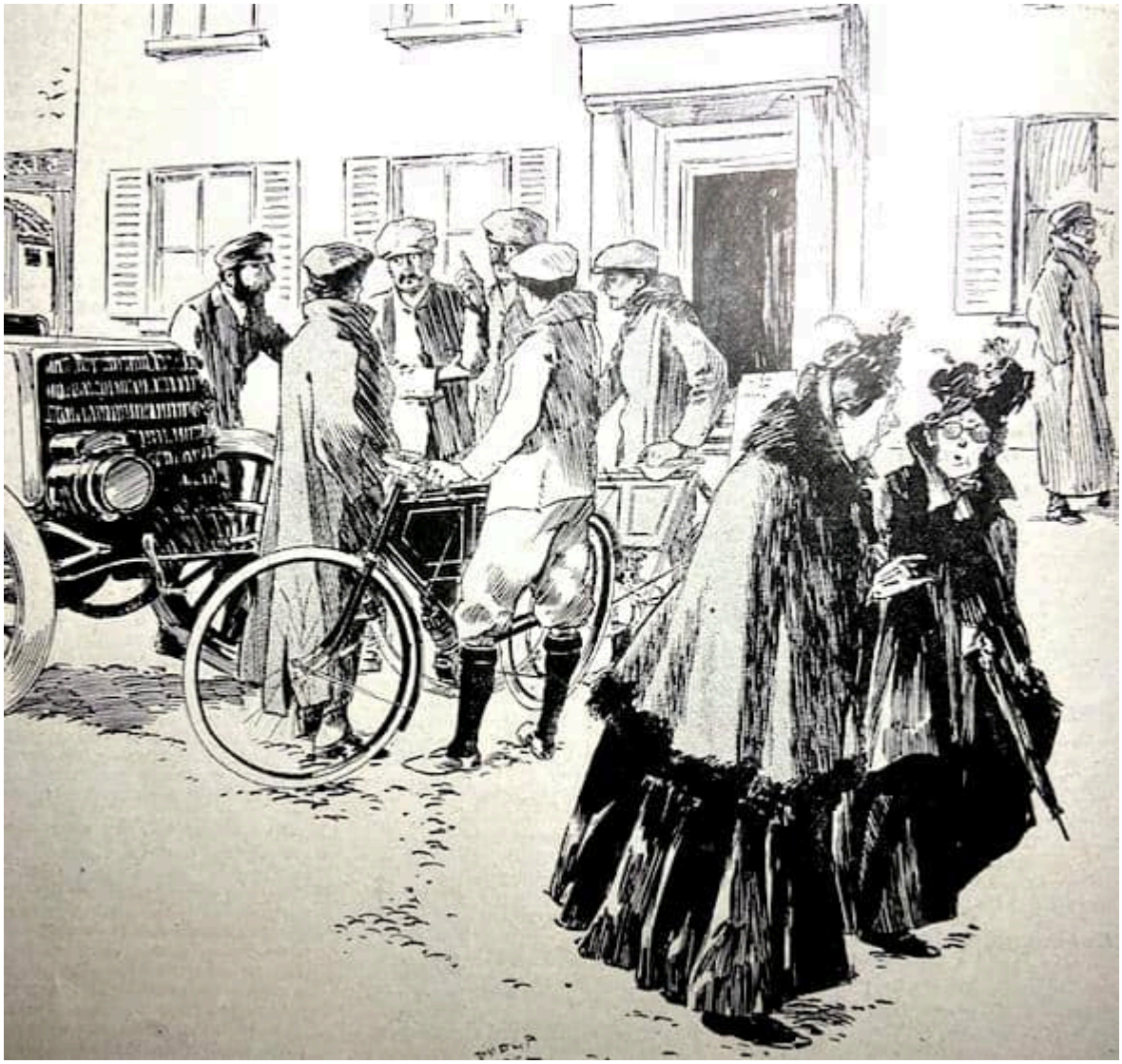
"SIR,—THEMOTORCYCLINGexperiencesof various writers in your columns suggested to me that a brief outline of some which havehappened to myself and other people might be interesting. The □ðrstwhichoccurred to me, by the way, was not a breakdown. After having tried to start for about two miles, I discovered that I had forgotten to insert the interrupter. Thesecond was meeting a man towing a motor tricycle up Barnet Hill. I found he had used up all the petrol in carburetter, and had not. □ðlledupfrom his spare tank; this was his □ðrstride.Thenextrider I met in trouble was on the Maidstone Road—hewas going to Folkestone, had got as far as Wrotham and then stopped. Upon examination I discovered he had run the old oil out of his crank chamber and had not replaced the screw. I had to substitute this with a pin of wood. Then I found that he had had his accumulators charged, and in replacing them had not put any packing to keepthem from shorting on the battery case, and everybump in the road jolted the terminals in contact with the metal can. Both troubles were easily remedied, but the latter had caused mis-□ðres,andtheformer resulted in seizure of the piston, which was eased with paraīin. On another occasion I could not get my motor to start and on examination found that some dust had got in the switch handle so could not make a circuit, but this was a very simple thing to remedy. On another occasion I met a friend pedalling his motor bicycle, and found his

batteries were run down, so obtained some electric bell wire and coupled his coil to my accumulator (which is a Peto and Radford), and we came home together oī the one accumulator, but I found riding side by-side very tricky, and every time we got a bit wide the wires parted. Another time I had my exhaust box stolen, this, by the bye, was a large copper aīair of my own design; then I realised how much help it is in passing horses. Once, whilst driving a quad, I could only go a few miles, then the thing would mis-□ðre. Tested batteries; all right; □ðlled up with petrol, started all right—after a mile or two mis-□ðres. I then started to run out the petrol from the carburetter, when I noticed that it was very much discoloured, and upon examination found that the copper pipe from the exhaust, which passes through the petrol tank, had got a small crack in it, so disconnected it from exhaust and had no more trouble. A good plan for anyone starting to ride a motor cycle without previous experience in motoring is to get a friend who has had experience to accompany him, when many little wrinkles might be picked up. I think all motor manufacturers ought to send out a book on likely defects and their remedies.
Henry Kennett Junr."

"SIR,—I AM VERY PLEASED to see that some of your correspondents, 'Avonian' and 'A Motor Cyclist', have suggested the forming of 'A Midland Motor Cyclist Club', to have its headquarters in Birmingham. I think it would be well supported, and there would be no question of its usefulness, especially to beginners in the grand sport. I for one should be very glad to become a member. Wishing you every success with Motor Cycling, which is a very interesting and useful paper.
CW Burnell."

"SIR,—ALLOW ME TO CONGRATULATE you on the success of your new paper. It is supplying a very genuine want, and should do much to put England in the forefront in this particular branch of engineering. I am glad to see in No 4 that someone is writing re silencers, and the small amount of silencing they do. A good article on this point and the loss of hp resulting from absolute silencing would be very welcome, as this topic has been neglected, and most makers think it immaterial whether their machines can be heard for 500 yards or 5 yards. The non-moting public do not, how-ever, by any means, and quite rightly too.
HE Bennett."

"SIR,—SHOULD BE GREATLY obliged to any of your readers who would kindly give their experiences of the following motor tricycles: The Ariel, Singer, and Quadrant. Each appear to have their good and weak points, and it would be interesting and instructive to have the opinion of riders who have put the machines to a practical test.
'Trike'."



“Motist (addressing his friends): ‘I never knew such a day. The □ðrstmanlovertook was stuck up with a short circuit; his wires had been shockingly insulated: then I came across a poor beggar with his carburetter □ðooded,andthenext victim yelled out that his commutator–.’ Respectable old Ladies: ‘Oh! how horrible!—what awful language!’ (Theyhastily retreat).”

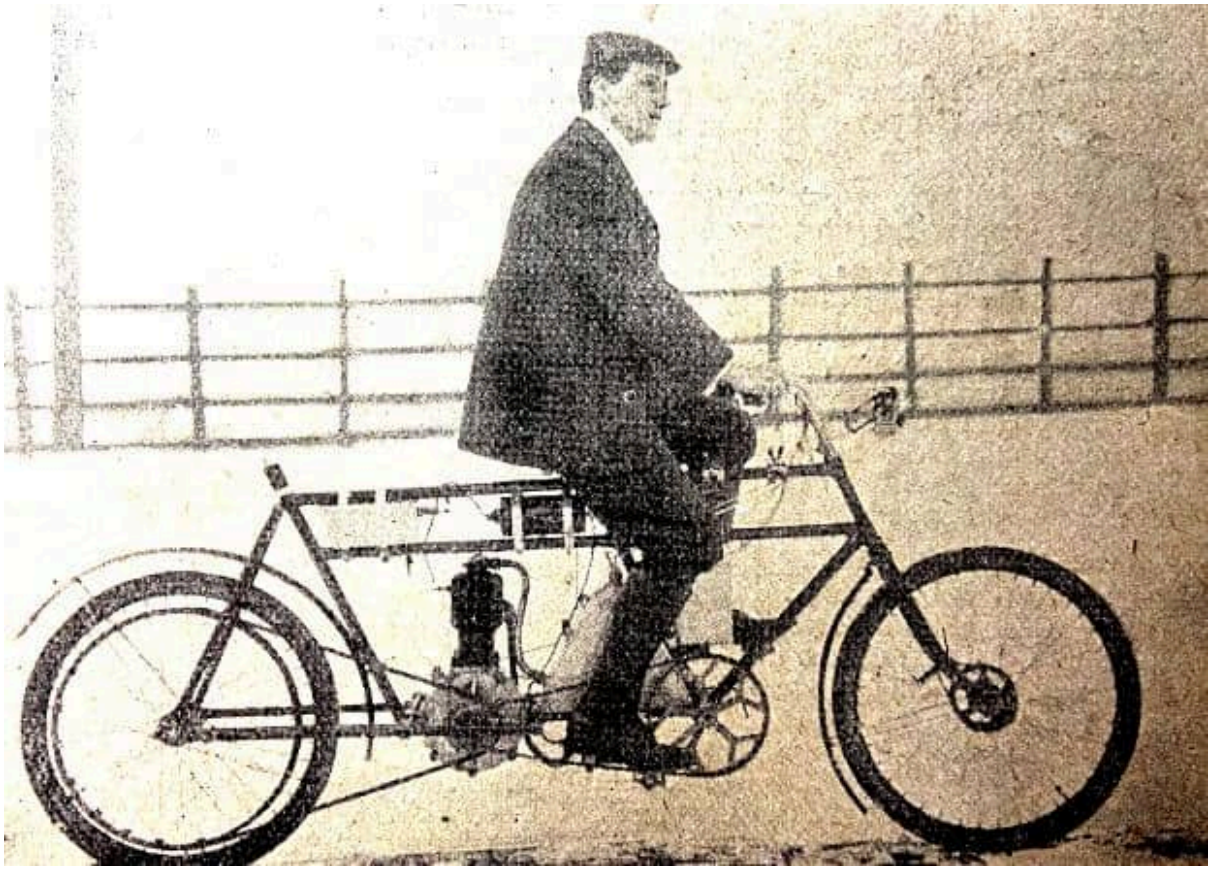
“MOST OF THE FRENCH motor □ðrmsareatpresent hard at work building single motor-bicycles for pacing purposes, as this style is likely to be the feature on French tracks this season. Among the best out, so far, one □ðrmhasbeenable to show a type whose total weight does not exceed 50lb, and which can attain a speed of over 50 miles an hour.”

“WE NOTICE THAT a German trade paper publishes an article by a well-known engineer in which the opinion is advanced that a really serviceable motor-bicycle could be produced to sell at £20, if a factory were specially laid down to produce it in enormous numbers. In fact, he is pretty con□ðdentthat,after a year or two, the price would be down to £12 or £15! Very creditable aspirations, of course, but somehow we are far from sanguine of their being achieved.”

“JUDGING FROM THE illustrations in the latest Parisian motor fashions, these are, if not exactly a ‘lady’s dream’, at least comfortable and elegant to a degree. The heavy fur coat has been discarded, and the oil-cloth, skins, and leather garments make room for softer and more

seasonable materials. Motor-cyclists will be interested in a combination suit with cuīed sleeves, which looks suitable and business like."

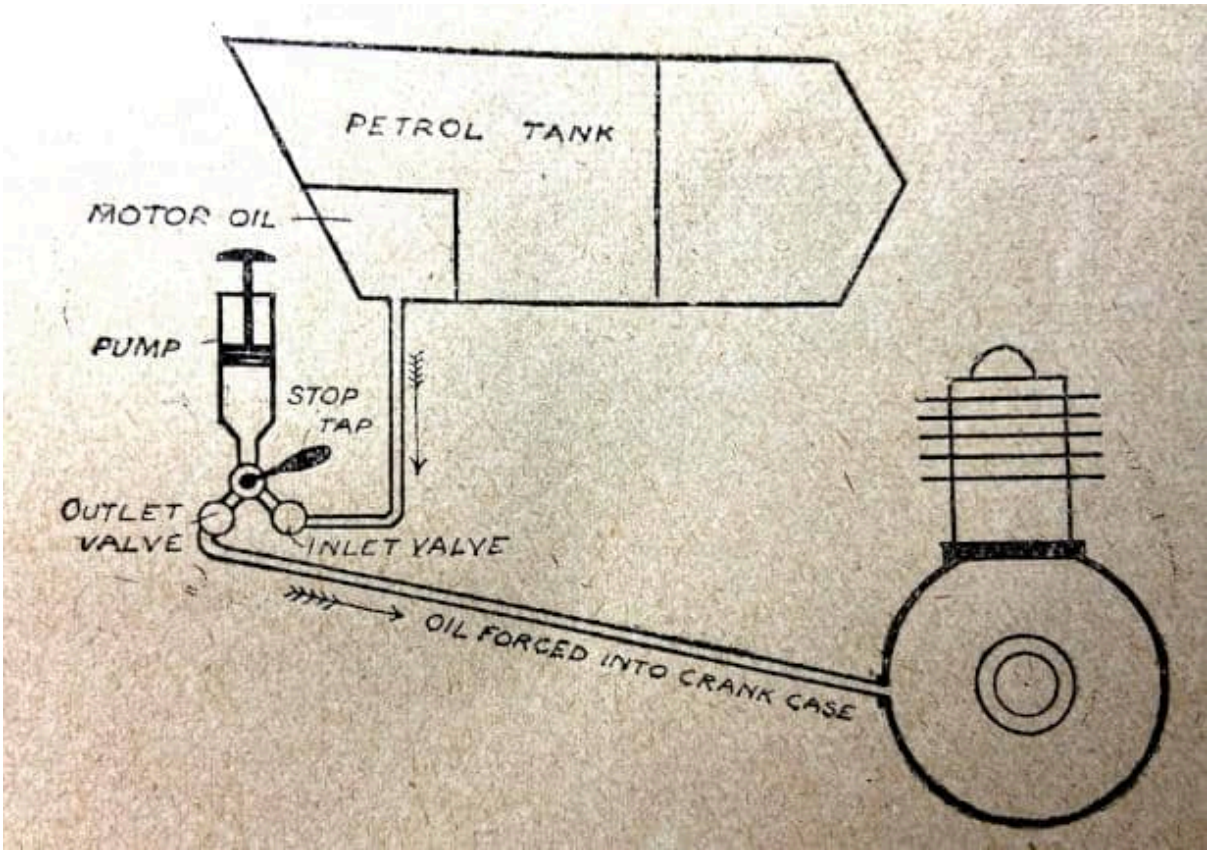
Rather interesting is the accompanying. photograph of a motor-bicycle designed by Mr TW Proctor of Sheīield for his own use in that very hilly district. He uses a somewhat high-powered engine, and has had it arranged in a machine of long wheel base—almost identical, in fact, with the frame of a tandem bicycle. The pedalling gear drives the engine through a clutch, and herein is perhaps the only fault, that in case of a break-down, it does not seem possible to disconnect the engine so that the machine could be pedalled home. We should be interested, in view of the theory on side-slip recently advanced in our pages by 'Cyclomot', to know what Mr Proctor's experiences are in this matter, and also on that of vibration. The weight being rather far forward, we should imagine that vibration would be felt from the rear wheel, and that the latter was somewhat unstable on grease."



"A lengthy motor-bicycle."

"THE CORRECT QUANTITY of oil to use is a matter that is best learnt by experience; a tolerably safe allowance for a 1½hp motor would be, say, a couple of ounces every 25 or 30 miles, but it would be well to remember that when the motor is new it is better to lubricate more frequently until such time that the bearings get into a good condition of surface. The lubrication of the exhaust valve stem and compression tap is also a matter deserving some consideration. The temperature to which these details get raised is such that even the best motor oil will get burnt up; luckily we have in plumbago, or pure blacklead, a suitable lubricant that will easily stand the heat. A, little of the □ðnest powdered plumbago placed on the bearing or rubbing surfaces occasionally, will keep them in good condition. Semi-automatic lubrication is distinctly one of the improvements of this year. Previously it has been necessary to dismount from the machine every 25 miles or so and re□ðll a small oil cup screwed into the crank chamber; this operation

proved rather inconvenient and messy at times, especially when a good non-stop run is desired. To remedy this a small hand pump and oil reservoir, with tube connections to the crank chamber, are provided on most of this year's machines. The oil reservoir forms a compartment in the carburetter tank, and is □ðxed by the diagonal tube, so as to be within easy reach of the small force pump. This contains two valves, one of which opens when the handle is drawn up and allows a quantity of lubricating oil to pass up into the barrel ; on forcing the handle down this valve shuts and the other one, which admits to the pipe leading to the crank chamber, opens and consequently the charge of oil is sent into the chamber; this operation, of course, is readily performed when the machine is running, and, as the charges are always equal in quantity, a systematic course of oiling can be attained. The removal of waste oil occasionally is advisable, and for this purpose a special plug in the bottom of crank chamber is provided, and after a long run a thorough clean out with waste petrol before re-oiling can be recommended."



"Diagram illustrating the method of lubricating the method of lubricating the motor."

"A MOTORCYCLE SECTION of the Manchester Wheelers is being formed. Further particulars can be obtained by writing to TWH, care of Wheelers' Club-house, 4, Albert Square, Manchester."

"A RIDER NAMED Joseph Downey is credited with having covered a mile on a straight road near Norwood, America, on a six horse-power motor-bicycle, in 54⅕, only 2⅖ behind Fournier's record ride."

"THE ST JOHN'S C AND AC (Tunbridge Wells) are forming a motorcycle section in connection with their club. The club also propose to include a motorcycle race in their Whit-Monday Sports programme."

"THE DUBLIN MOTORCYCLING Club. We welcome the club of this name which has been formed by some prominent men in the Irish capital. The inimitable JC Percy has been

instrumental in bringing about this desired end, and thoroughly merited the vote of thanks accorded him at the meeting which was held at the Hotel Metropole, Dublin, on Friday week last. Mr JB Dunlop was invited to take the chair…The chairman made an exceedingly interesting speech in which he said that he believed the pastime of motorcycling had a very great future. He had no doubt that the formation of the suggested club would be the precursor of many similar organisations. He dealt with the bene□ðts to be derived from membership, and also with the advantages to be gained from motorcycling by those who wanted moderate exercise and who desired to see our beautiful country with a minimum of exertion. Mr Dunlop then went on to give his opinion on certain technical matters, dealing at some length with the vexed question of side slip. He concluded his address and resumed his seat amidst a round of applause. Mr Mecredy's proposal that the club be formed was adopted, and on the election of oïicers Mr Dunlop was selected as president, Mr Mecredy as captain, Mr Wallen as treasurer, and Mr JC Percy as secretary."

"RECENTLY WE HAD the opportunity of inspecting one of the □ðrst motor-bicycles turned out of the Wellington Works, by Bradbury and Co. The machine was □ðtted with the new 1½hp Minerva engine. Special attention had been given to the length of wheel base and other important features in connection with the frame."

"The human form divine. MOTIST: 'By St Petrol and all that's puncturable, what must he look like when they're pumped up hard?' HUNTIST: 'Gwacious! What have we found? Paw beggah looks cold!'"

"WITHIN THE LAST FORTNIGHT there has been a most marked and unmistakable increase in the the demand for motorcycles from all parts of the kingdom, but most particularly from the provinces. Almost without exception the manufacturers of the leading machines con□ðrm this, whilst the makers of good motors are being pressed exceedingly hard. Judging by our ever-increasing correspondence, a feature of the demand is the number of enquiries from provincial medical men, who are quick to see in the motorcycle a means of transit essentially suited to their requirements. More noticeable still are the opening remarks of enquirers to the eīect that they write us for information on behalf not only of the respective writers themselves, but of friends who also intend going in for the new pastime; indeed, one correspondent, writing from Ashton-on-Ribble, asks us about a machine—the 'New Werner'—as he and three friends desire to order. The advantage of companionship and the attendant pleasure of discussing the many questions at issue is already responsible for the impetus which is now being given to the new movement. Another writer, who hails from Dulwich, tells us that both he and his friend have

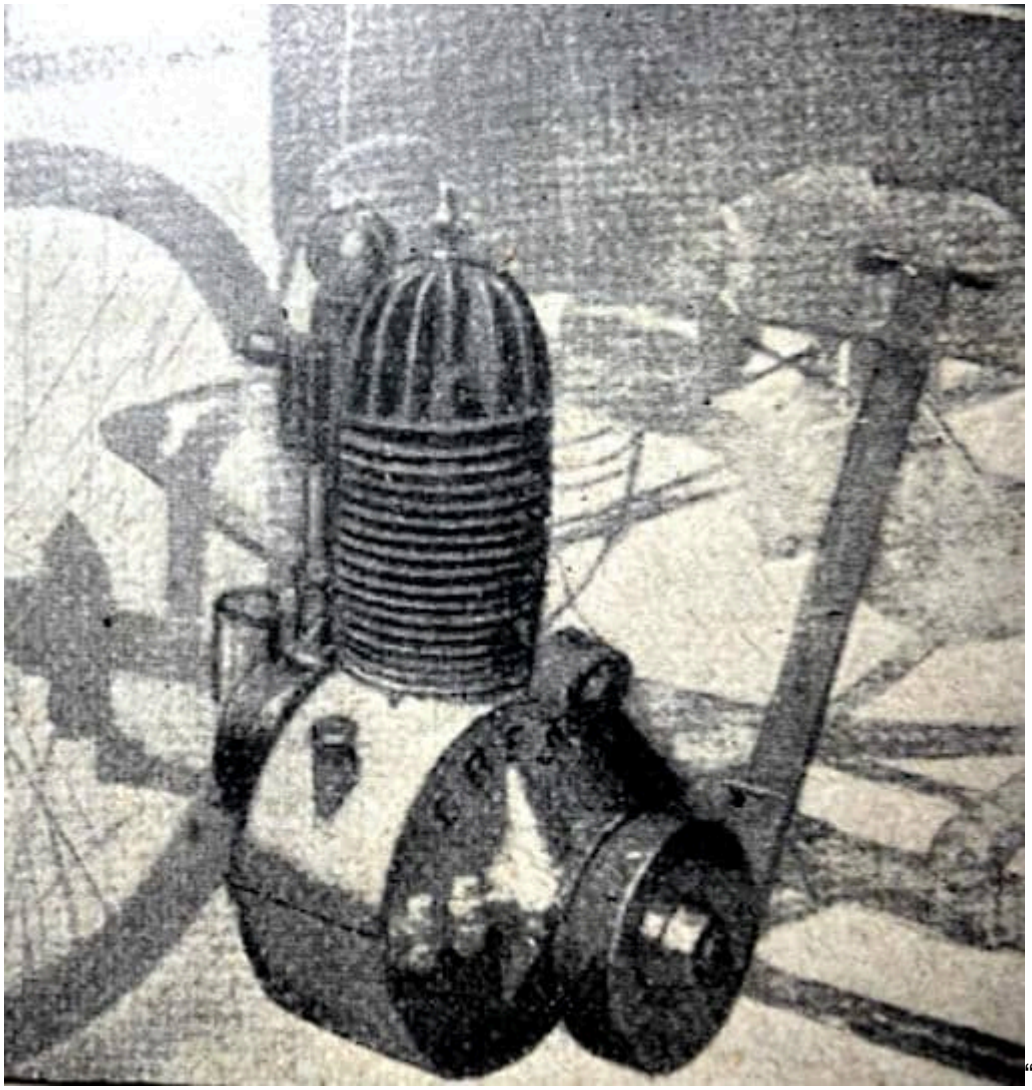
decided to dispose of their cars and go in for motor-bicycling, and, in fact, are starting at once on a tour through Germany; they will ride respectively a 'Derby' and a front-driver. The communications quoted are but instances of the increasingly favourable manner in which the motorcycle is being regarded, and we could quote ad in□ðnitumtoshowthat the pastime is not only rapidly spreading, but that it is doing so in ways which were scarcely to be anticipated. Despite all this, however,the evidence which predominates is of a nature which shows that a large proportion of our readers, although closely following every line, are deliberating, the chief explanation of which which is that they are, to a large extent, ignorant and perhaps a little timid of a machine so entirely novel. It must not be forgotten, too, that the sudden appearance of 'Motor Cycling' has itself taken everyoneby surprise, but, like its sister publication, it has quickly succeeded in gaining the con□ðdenceofitsreaders, and it is only a question of a little time before it will be able to lay claim to having materially assisted in the expansion of an enjoyable pastime and gigantic industry."

"There is nothing better than petrol to clean the sparking plug brushing with an old toothbrush. Care should be taken the brush does not □ðnditswayback to the toilet table." (Right)"It must not be forgotten that a machine weighing approximately three-quarters of a hundredweight is not to be handled as easily as an ordinary cycle. To carry a motor cycle up and down a □ðightofstairs means a two-handed job."

"MOTORPACINGIN AMATEURevents. Up to the present, a ruling of the General Committee of the National Cyclists Union prevented the use of pacing by means of motor driven instruments, but the recent rapid developments of the sport of motorcycling have evidently induced the committee to look with a somewhat more lenient eye towards this method of pace acceleration. It decided at its last meeting that any Centre of the Union may, on application, give permission to a bona-□ðdeclubtopromote a race for its members in which pacing by single motorcycles shall be allowed…Wehope that at a fairly early date races will be promoted by prominent

London clubs, in which the practicability or otherwise of the bicycle as a pacer under the stress of a keen competition may be put to the test."

"ONE OF THE MOST pleasing developments of the pastime is the formation of motorcycling clubs in various parts of the country. With the example before us of what clubs have done for the sport and pastime of bicycling, the new movement is extremely encouraging. The pioneers of the sport may well be likened to those who make the excavations for a new building and, if the foundations take the form of clubs and other organisations, then the superstructure can be regarded as being □ðrmly established, and changes, many and often, may even be made without impairing the soundness of the structure. The Motor Cycling Club formed amongst London motor cyclists was the pioneer club, and its formation was followed up by a proposal to establish a similar organisation in Birmingham. Clubs have now been formed in Portsmouth and Dublin, and motorcycle sections have been proposed for the Manchester Wheelers and the St John's C and AC of Tunbridge Wells. We. shall be glad to hear from any other organisations of the kind as they are formed and also to be kept informed of their ambitions and doings from time to time."



"The Crest Manufacturing Co, of Cambrideport, Mass, have a new starting device which we illustrate. This is fastened to the axle of the motor, and allows the rider to start the engine from his seat. The pulley has a strap wound on its surface. Within this pulley is a clutch mechanism which is

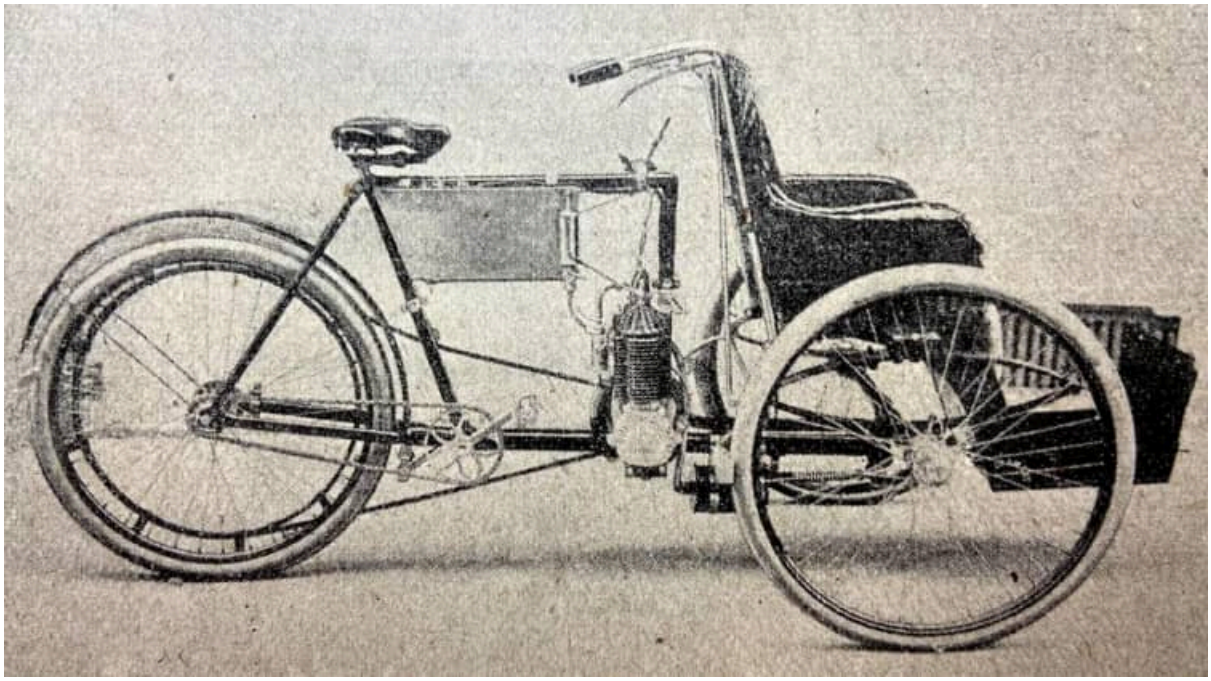
attached to the motor shaft, and only comes into use when the motor is started. When started the mechanism is thrown out, preventing wear and noise, and when the engine is stopped, the mechanism again comes into action. The strap runs from the starting device through the bottom of the car, having a double handle at one end for the driver to operate."

"AS A RESULT OF the general dissatisfaction given by the present type of belting, Mr E Lycett, of Birmingham, has been experimenting with a view to securing a special kind of leather to withstand the wear and
tear that a belt on a motor-bicycle is subjected to. One of the □ðrst samples of the new belt has been sent to our Midland representative for trial, and…we hope to report on its.merits or otherwise at an early date. It is claimed for this particular kind of leather that it is not aīected by either oil or water, and that it will not stretch beyond a certain point, but always retain its 'life', and consequently will wear much longer than the belting at present in vogue."

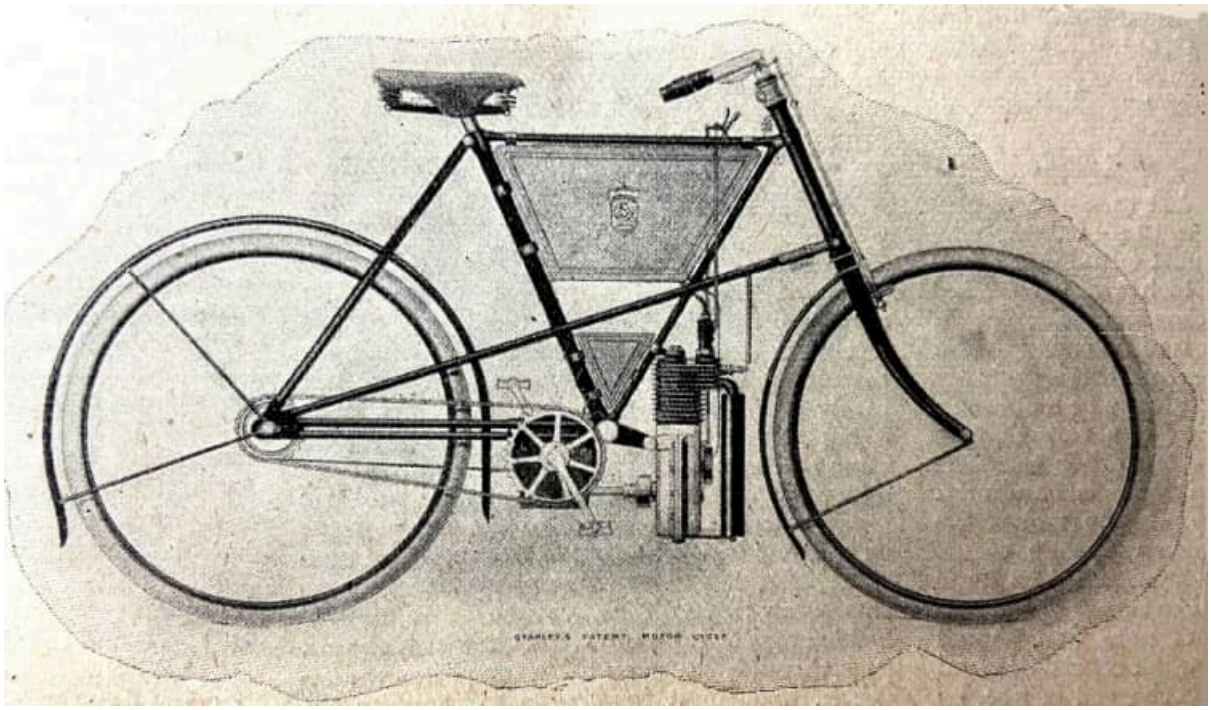
"NEARLY EVERY POSSIBLE form of transmission has been already experimented with, starting with the 1878 Paris Exhibition machine and its direct driving, then in '85 Daimler's Bicycle (belt drive), in '95 the Hildebrand-Wolfmuller, also De Dion gear driven-with pinions; in '96, Heigel-Weguelin bevel gear drive; in '97, Bluhm chain driven, down to all our present-day varieties, including friction rollers, worm and wheel, etc. Now, to sum all these up in a few words in their order according to our old watch-word, eīiciency, we come to (1) direct drive; (2) chain drive; (3) pinion gearing; (4) belt, and lastly, other combinations. It is easy to see that a combination of the second and third have practically superseded all others on cars…Direct driving is out of the question with high speed engines (engines revolving at more than I,000 turns per minute), chains are too rigid by themselves, and involve the complication of a friction clutch in order to be practical at all, and preferably also a spring drive. Gear pinions have all the disadvantages of a chain and a little extra friction thrown in. Belt drive is simplest, if in proper condition, and at least nearly equal in mechanical eīiciency (considering our special purpose) to a chain. But, alas! that little 'if'. 'A mighty word your if', as Shakespeare says, and, judging from results, so far that proper condition is not easily maintainable…a belt is much more aīected by atmospheric changes and by wear than a chain, and it is just these two little items which…will cause the chain to survive."

"Sir,—With reference to your article re pedalling in motor-cycle races, I think [this practice] should be limited to, at the outside, 50 yards from the start as the races should be trials of skill and not muscular strength. Also races will be tests for the various makes of motor-cycles competing, and the results will be a guide to intending purchasers. I have heard it argued that a competitor might possibly make a mistake during a race and pull up so much that pedalling would be needed to restart, and that in a case of this sort pedalling should be allowed. I do not agree with this, for if a machine pulls up during a race, it is either because the driver is clumsy or incapable, or else the machine is faulty, and in either case I think that it should be ruled out of the race. If we are to have motor-races, let. us have no half-and-half business, but do the thing properly. The question then arises as to what form of government motor-cycle racing is to have. It seems to me that unless a special union is formed for the purpose, it will be much the best.; to look to the Automobile Club for guidance…the NCU does not recognise road events, whereas the Automobile Club not only recognises but does its best to promote, competitions of various sorts on the road. These must necessarily be of interest to the majority, as no test from a buyer's point of view is so good as a road test. The matter of the government of motor-cycle competitions needs to be gone into carefully, as much depends upon it.
Ernest H Arnott.

[It Will be readily admitted, even by those who, unlike Mr. Arnott, are not 'agin the Government', that the whole matter requires to be thoroughly thrashed out. The views of other readers will be welcomed.—Ed MC'.



"'La Francais'. A neat tricycle of French manufacture."



The improved 'Starley'. It will be remembered that in our □ðrstnumberweillustrated the Accles, De Veulle and Starley motor. The above illustrates several improvements eīected since that time."

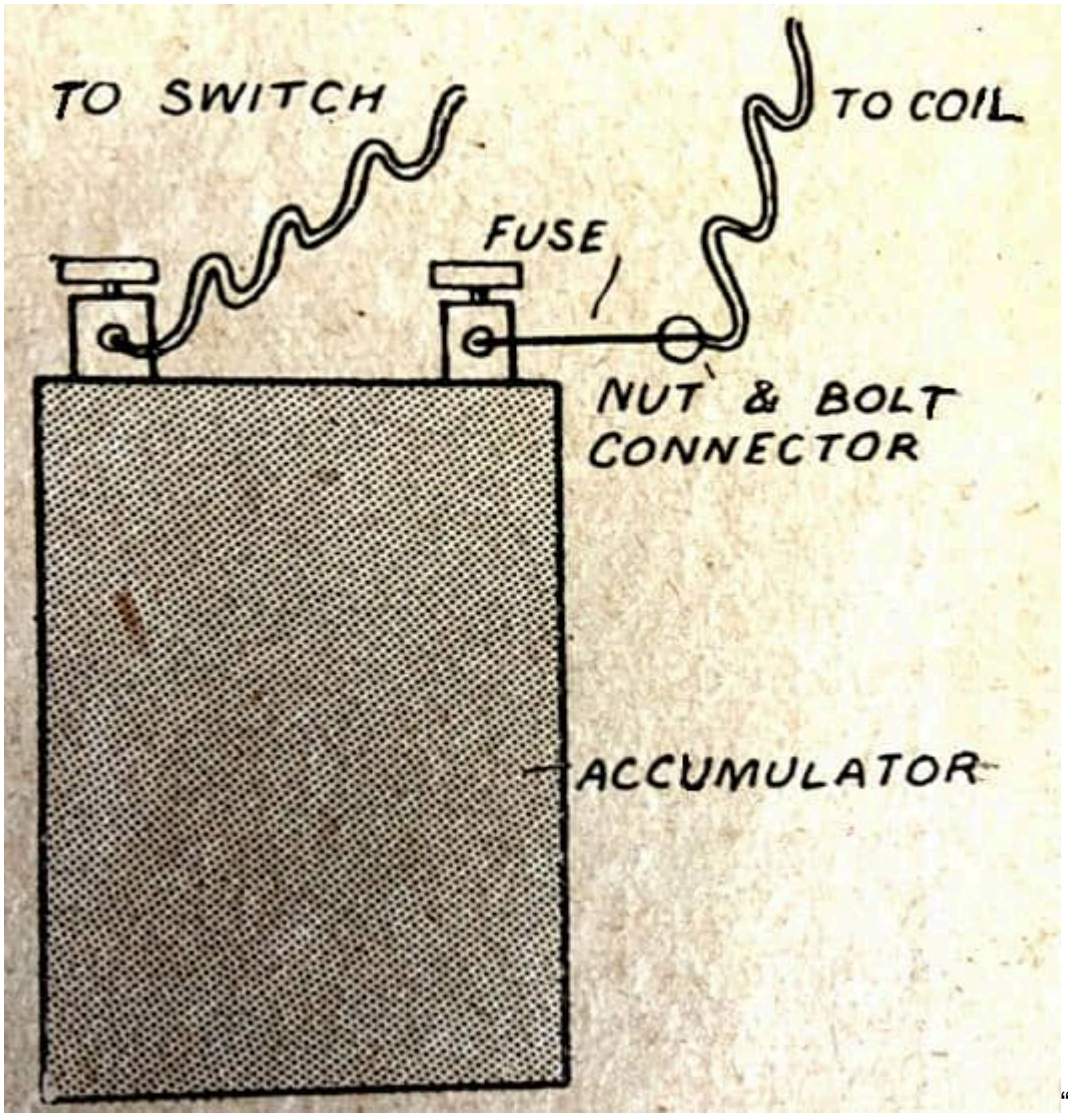
"PLATINUM—THISRAREANDvaluablemetal is indispensable for contact breakers. It arises from the fact it is the only metal that will resist the fusing action of the spark to any extent and at the same time not oxidize or blacken and stop the current. There is no other metal that can be substituted and in purchasing platinum tipped screws and contact blades it is most important

to see that it be absolutely pure platinum. Owing to its high price (above that of gold), there have been attempts to put an inferior alloy on the market, containing silver, nickel, and little platinum only; contacts made of this will give trouble and the purchaser or dealer would do well to satisfy himself by applying a test for platinum. Obtain from a chemist a small quantity of the strongest nitric acid (aqua fortis) and a. small test tube. Place a few □ðlingsorscrapingsofthe metal into the tube and pour a little of the acid over them, then boil over a gas (Bunsen) □ðame.Ifgenuine platinum the acid will not aīect it in the least; if an inferior metal it will speedily attack it, dissolving it and coloring the acid green."

"NEXTMONTHWILL UNDOUBTEDLYbethe last time for the motor exhibition of the year to be held so late, and there is also reason to believe that the Agricultural Hall will know it no more, greatly to the sorrow of the in□ðuenzamicrobewhich in the past has laid many of us low year after year. It is an awful place, and a disgrace to London, which ought long ago to have had a central and suitable building for industrial exhibitions. At a trade meeting held at the Automobile Club on Thursday last, the exhibition question was fully discussed. It had been previously agreed that the present date was too late in the year, and in the event of the present promoter being unable to meet the requirements of the trade, that other arrangements should be made, and it being stated that the Hall cannot be secured earlier than March, it has been necessary for exhibitors to look elsewhere. The National Cycle Show, Crystal Palace Motor Show and Stanley Show have all come forward with propositions, but it having been resolved that next year the exhibition shall be held towards the end of January or early in February, the □ðrstandsecondare thereby thrown out of court. The Stanley people, with commendable enterprise, have jumped in and secured no less a place than the Earl's Court Exhibition for the fortnight commencing on January 10."

"THE GENERALFEELINGWITHregard to our suggestion of an association to legislate for and control the sport of motor-cycling was that the time was not yet ripe for its adoption—an opinion in which we share. But, since the article which appeared in our second issue was written, both the Automobile Club and the National Cyclists' Union have made certain steps towards securing that control, and it has therefore become urgent that the question should heat once decided. The need for a governing body is unquestioned, and in the present stage of the sport and pastime it would be expedient if it were also to become an organising body. Without some form of control the sport would quickly degenerate into a mere advertising medium—perhaps into something altogether too unclean for any decent sportsman to be connected with."

"A VALUABLEIGNITIONCIRCUITIDEA.When accumulators are used to supply the current there in a possibility of a short circuit occurring on the leading wires; if this remains undiscovered, even for a few minutes with the current on, serious damage may be done to the accumulator or some part of the circuit may burn out. To safeguard against this is very simple indeed; all that is necessary is to put an inch or so of 'fuse' wire between one of the battery terminals and the wire that joins on to it. If an excess of current passes through the circuit this wire will quickly melt and break the circuit, indicating at once that something is wrong. A good length of this wire can be got for a few pence at an electric-light □ðtter'sshop.Askfor a piece to break with three to four amperes. A few inches in reserve should be carried in the tool valise. A small brass nut and bolt attached to the wire will enable the connection to be readily made."



"How to connect the safety-fuse."

"THE LATESTPRODUCTofMBuchet's works in Paris is said to be a two-horse power motor, weighing but slightly over twenty-□ðvepoundsandintended for driving motor bicycles."

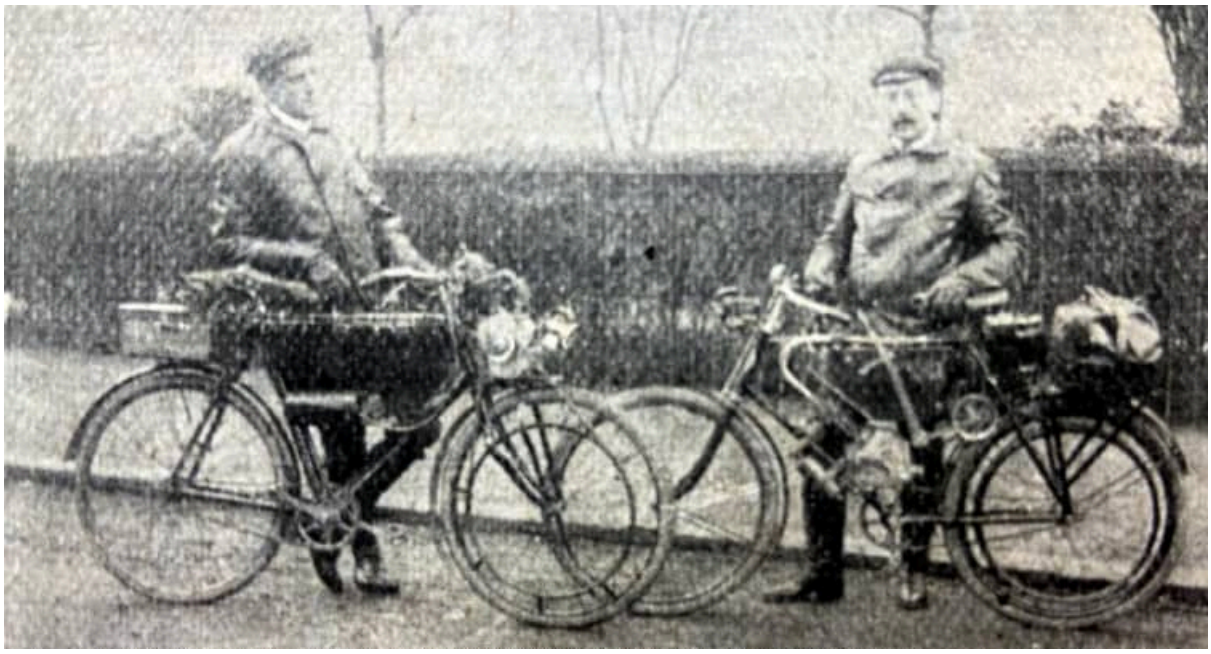
"THE INTERESTTHATISbeingtaken in motor-bicycles is clearly indicated by little groups of spectators who can be seen everyday peering in at the windows of some of the depots on Holborn Viaduct. It is particularly noticeable that the motor-bicycle is provinga considerable 'draw' for the generalpublic, and there is no question that the lay mind is fast graspingits generalities."

"THE MOTORCYCLEWILLbeused for both racing and pacing purposes in France this year. Some machines are under construction which are expected to attain a speed of 75 miles per hour!"

"CAN MOTORSDRINK?[Aninternational competition of motors using alcohol as fuel will be held in Francein May, under the oïicial direction of the Minister of Agriculture; its object being to show the advantagesof alcohol.]: 'Just look at those cars, how they frolic! Their antics are quite diabolic; One would certainly think Thatthey'd taken to drink—Theirbreath seems to smell alcoholic. Is it brandy, or black and white whisky, Thatmakes them so terribly frisky? But it's rather too rich When they roll in the ditch—In fact, it's decidedly risky. Theycan't pass the door

of an inn Without stopping to guzzle their gin; And, highly elated By neat methylated, With reckless abandon they spin.'
Wm C Birt Whitwell."

"MESSRS EICH AND TRIER, with a belt driven Derby and front driving Trent respectively, are about to ride from Cologne to Zurich, Switzerland. If successful their intention is to ride across the Alps. Mr Eich is an experienced motor-carist, but he has given up the latter for a motor-bicycle. The two riders, we hear, have been laying in a good stock of 'Possibles' and a few 'Impossibles'."



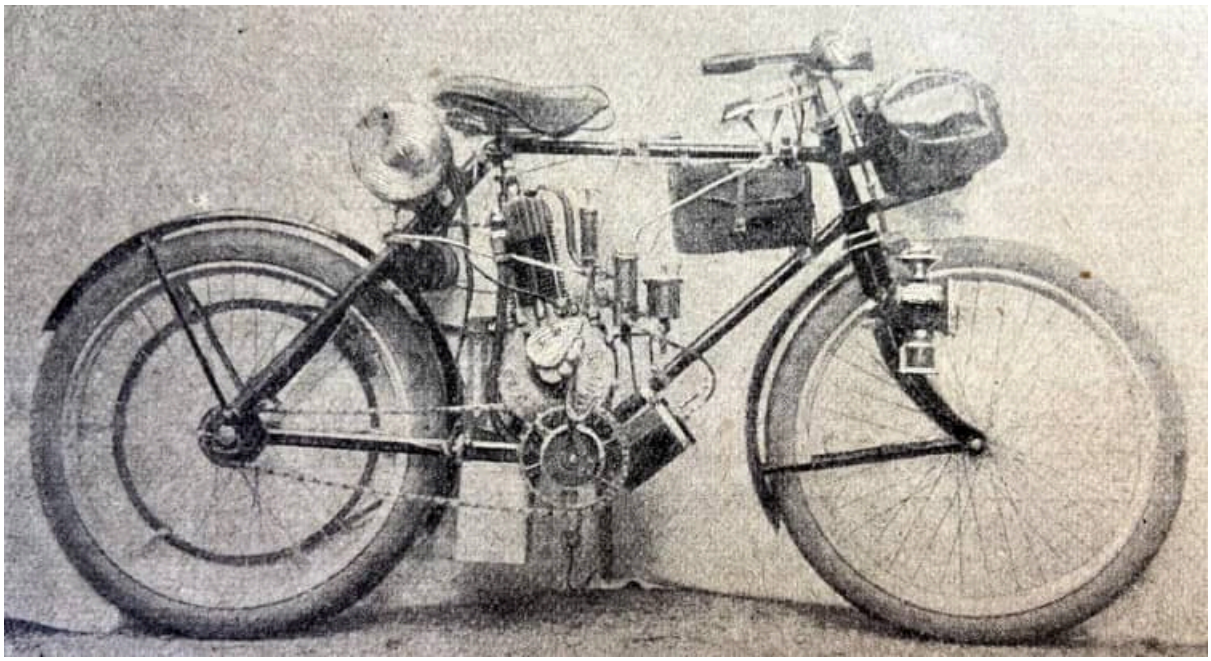
"Messrs Paul Eich and V Trier, who intend touring from Cologne to Zurich, with their machines equipped for the journey."

"MR HARRY PARSONS has of late been experimenting with a trailer attached to a Holden motor-bicycle with notably satisfactory results. The passengers were Mrs Parsons and her little son. the total weight drawn being 13½ stone. On the level and up hill the motor ran splendidly, in fact its hill-climbing capacities were quite astonishing. When the engine slows on a sharp gradient Mr Parsons steps oī and walks beside the machine—not a dangerous proceeding, as there are no pedals in the way; the fact that the engine runs well at so slow a pace as walking is a great advantage. The motor then drags the trailer and its passengers quite safely up the slope. This oīers quite a new prospect to the motor cyclist—a capacity to trail 13 stone means the possibility of touring with a passenger and a good amount of luggage."

"NOTTINGHAM IS PROBABLY as forward in the motor movement as any English city of equal size. During a recent run from Laceopolis to Newark and back, we met, in the course of of forty miles, no fewer than seven cars, one quad, one tricycle and one motor-bicycle. Nottingham also possesses a very □ðourishing Automobile Club, which is aīiliated to the ACG Band I."

"THE ITALIAN GOVERNMENT has decided that motor-bicycles and tricycles are not to be classed as automobiles. This welcome decision frees the drivers of these vehicles from the necessity of passing an examination and from following the strict regulations which apply to car drivers. Interference from the police and other delays are also avoided. But it is not certain whether the decision aīects customs requirements."

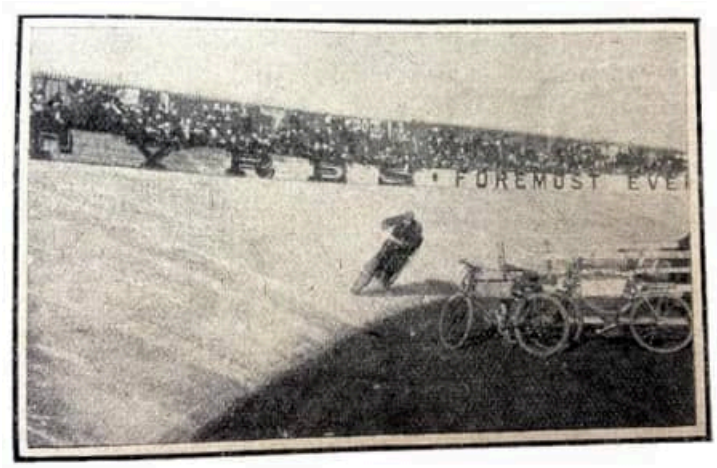
“A FRENCHMECHANIChassolved the problem of how to make a bicycle out of a tricycle, and as the illustration shows it has been done with success. Theconstruction naturally appears to be very heavy, but it must not be forgotten that all the material and parts were originally made for a 2hp De Dion motor-tricycle. Severalof the tubes had to be altered, and the diīiculty of arranging the bottom bracket and the crown pieces was considerable…Themotor takes the place of the middle vertical tube and gives the frame great rigidity. Theconstruction is on the De Dion principle. Themachine has three brakes, one on the front wheel, the second works on the motor, and the third is a band brake on the rear hub ; the two latter brakes are worked by one lever. Thethree speeds of the motor-tricycle have been retained, and the motor works excellently in its new form. Theowner has covered 2,000 miles with the machine, half of which distance was done in its altered form.”



From trike to bike.

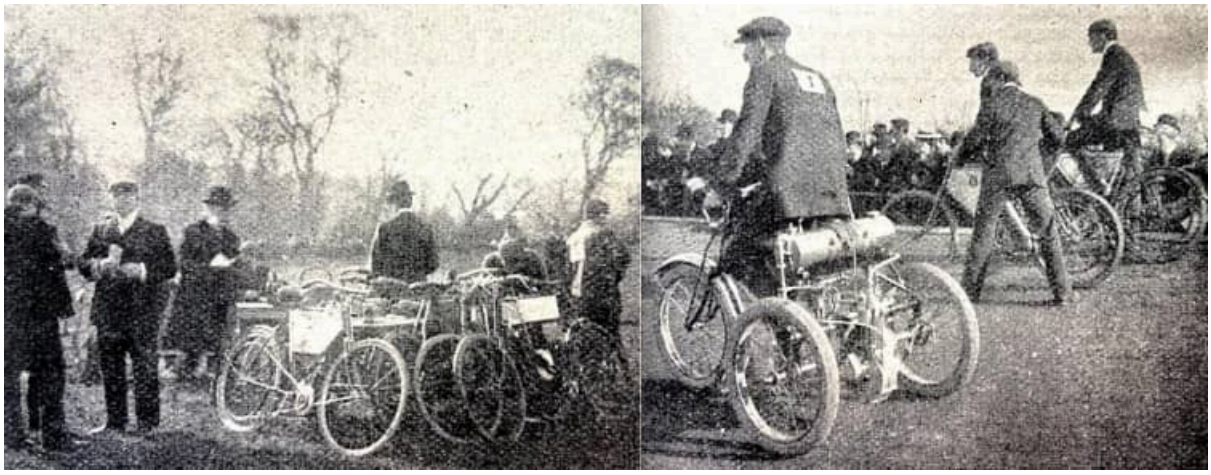
“SOME 12,000 SPECTATORSATTENDEDtheCharitySports at the Aston track, Birmingham, on Wednesdaylast, and it is not going too far to state that the most popular item on the programme was the □ðvemileshandicapfor motor-bicycles. Thehandicap was such as to preclude anything like an exciting □ðnish,anduntilthe gentlemen who allot the starts have had a little more experience with regard to motor propelled cycles it is quite impossible to expect such close □ðnishesaswearеaccustomed to witness in cycle racing. A few months’ experience should, however, make a great deal of diīerence. In connection with the new racing movement, we wish to draw the attention of sport promoting organisations to two rather important points, as they may have a great deal to do with the success or otherwise of motorcycle racing. The □ðrstisthat some means of identi□ðcationofthe competitors should be given to the spectators. Racing cyclists wear diīerent colours, but up to the present racing motists appear to think that a small card pinned at the bottom of the coat is suite suīicient…The noise created by half-a-dozen machines cycling around an enclosed track without silencers being □ðttedwouldquickly kill such kind of racing. Thepublic must be considered and the fractional extra speed obtained is not worth consideration…Thecontest was run oī in three heats and a □ðnal.Thesmall-powered engines were quite outclassed by the larger variety. W Heath, riding a Werner 1½hp, won the □ðrst heat; H Stones, Lincoln, on a Rex1¾hp, easily accounting for the second; while H Martin on a 2¾hp Excelsior took the third. Owing to the regulation which prevented a competitor from

pedalling after crossing the starting line, several competitors were simply 'left', as they had not found a suitable mixture by the time they reached the line. In the □ðnal, S Wright, Coventry, on a 2¾hp Excelsior and who got into the □ðnal by reason of being fastest loser, simply raced away from H Martin, and won in the grand time of 8min 34sec; Martin second, in 8min 39¾sec. Stones on the Rex had the misfortune to break the belt of his machine after going a few laps. The last mile was ridden in 1min 39sec."



"Motorcycle racing at Aston. Wright, Coventry (winner) in the last lap. The last mile was ridden in 1min 39sec. (Right) An interesting glimpse of the back-markers getting ready to start in the □ðnal heat. The riders are Wright, Martin and HW Stones."

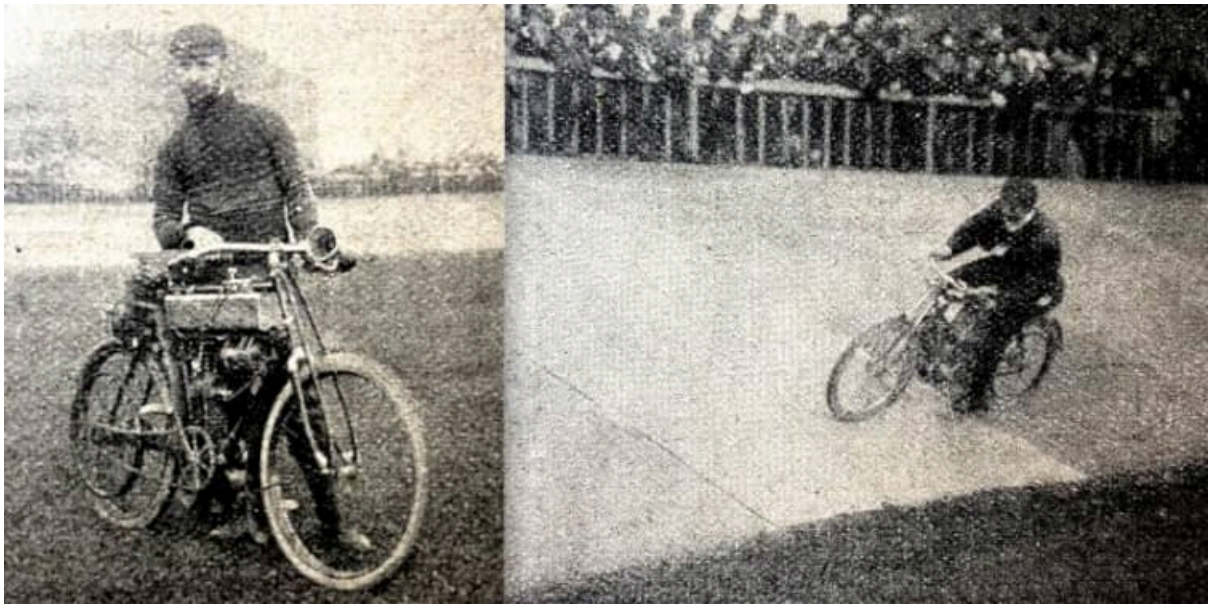
"AT THE BRIGHTON CC's race meeting at Preston Park track on Easter Monday a □ðve miles motorcycle handicap was included in the programme. The event evoked a lot of interest among the spectators and the sport was not spoiled by unnecessary noise, for exhaust boxes were left on. Twelve riders entered, and eight ran in two heats. The □ðrst heat lay between WJ West □ðeld, bicycle scratch, JJ Leonard, Werner, 320 yds, EB Blaker, Allard tricycle, 2 laps, J Best, bicycle, 2 laps 600, and FW Frith, bicycle, 2 laps. Leonard won in 11min 30sec with fair ease, Best being second and Blaker third. In the second test, AJ Kessler, bicycle, 1 lap 300 yds; A Rivett, Blizzard bicycle, 2 laps 220 yds; HC Harris, 2 laps 600 yds started, but Rivett was the only competitor to □ðnish, his time being 9min 26sec. In the □ðnal, Best, Rivett, Blaker and Leonard competed, Best's machine giving out after a couple of laps had been completed. The race resolved itself into a contest between Rivett and Blaker, but the, former was able to improve the lead already held, held, and won in □ðne style by a lap and quarter, Leonard □ðnishing third, three quarters of a lap behind. Time 9min 1⅘sec."



“The Brighton meeting—massing for the race.” (Right)“Start for the Five Mile Handicap.”

“A FIVE MILES’ OPEN RACE for motorcycles was included in the Easter Monday programme of the Putney AC’s meeting, the prizes being presented by Mark Mayhew, Esq. The two preliminary heats left for the □ðnal A Westlake (Motor CC), J Cousens-Nixon (English Motor Club), and H Martin (Queen’s CC). The start was not particularly good, because Westlake got left. Martin secured a lead of 50 yards down the □ðrst straight, to be caught and overhauled by Westlake in a little over a lap. After that the latter went ahead, and, travelling in □ðne style, lapped the others and won in 9min 30⅕sec by a lap and a half from Martin, Nixon three and a half laps away, outclassed by higher powers. Westlake rode a 2¼hp Chapelle, Martin a 2¾hp Excelsior, and Nixon a Chapelle.”

“Starting in a heat of the Five Miles Scratch Race at Putney.”



"A Westlake (winner) with his 2½hp Chapelle." (Right)"H Martin rounding the bend at thirty an hour at Putney."

"QUITE A LARGE NUMBER of motor vehicles of all kinds were about on the South Coast watering places during the [Easter] holidays. The Brighton and Portsmouth roads were particularly busy and motorcycles were to be seen in very encouraging numbers…We noticed a very fair number of motor bicycles along the Welsh coast at the week-end, and the remark applies to many of the well known inland resorts, such as Bettws-y-Coed…Both the North Road and the Brighton Road were alive with all types of cars and cycles during the holidays."

"SIR,—I HAVE HAD plenty of experience with an Ariel trike. Mine is only 2¾hp and not water jacketed, but I □ðnd it quite powerful enough and it never over-heats…I have ridden over 20,000 miles; have never had a breakdown and have only renewed one part, ie, the small driving pinion on engine shaft. I invariably take a passenger with me on an Ariel trailer, and we do some big journeys. The last one was to London, in November [1901] to the Crystal Palace Show, 127 miles in about eight hours (running time)."
Geo W Burnell

A LOCOMOBILE STEAMER beat an internal-combustion motor in a 500-mile trial on the Glasgow Exhibition Track. Motor Cycling reported: "The issue of the race literally hung in the balance right up to the tape."

"A NEW YORK DEALER is selling a 1¼hp motor for £6. The price is low enough, but how about the quality?"

"THE CLUB GARAGE, Edmund Street, Birmingham, stores, cleans, and repairs cars and cycles. We hear also that a large stock of accessories, spare parts and petrol are kept."

"MANN, EGERTON AND CO, Norwich, have large motor premises in the centre of the town, and are able to do any repair to car or cycle. Tourists in the district will □ðnd this information of value."

"AT A DINNER of the Automobile Club of America, Signor Marconi stated that he was a motor-bicyclist. He told the members how he carried his wireless telegraph out□ðton his car, but he had done nothing of the kind with his motor-bicycle, 'I □ðnd that it gives me plenty to do as it is,' he remarked."

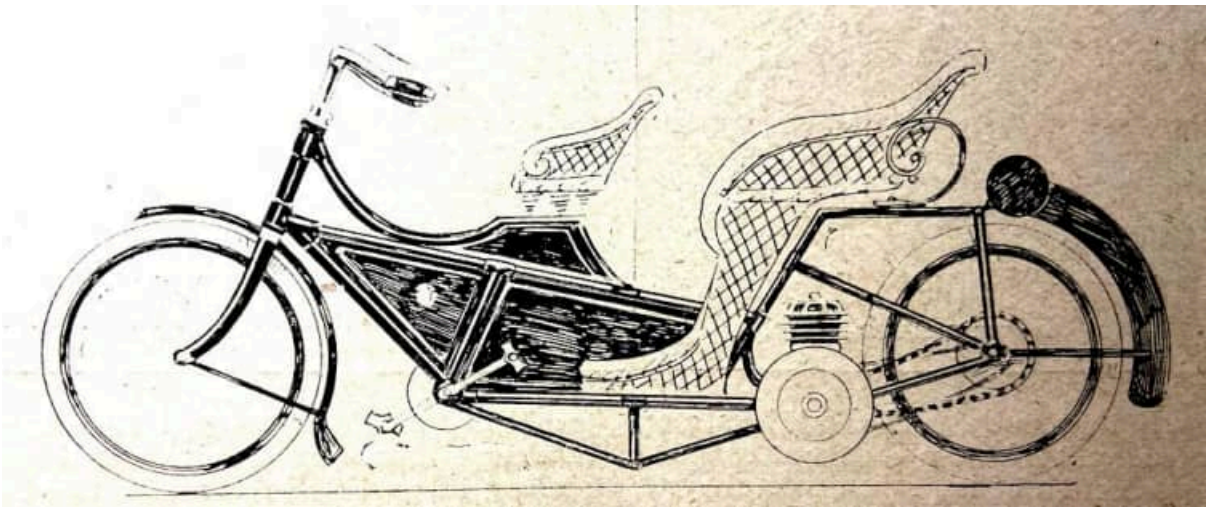
“CHATTING RECENTLY WITH a Japanese gentleman over here on a visit, he said that there were not many motorcycles in use in his country. The streets are narrow and crowded, while petrol is diﬃcult to get, and the freights high. There are about half-a-dozen motor-bicycles about, mostly American, and these are used by travellers, who ﬁndthemahandy form of conveyance.”

“M GERMAIN, WHO IS one of the best amateur motorcyclists in Lyons, covered the kilometre ﬂying start in 46 seconds in the annual race of the Lyons motor club last year, and he also won ﬁrst prize in the hill climbing competition up Champagne Hill. This has a gradient of about 1 in 13, and the length of the hill, 2 kilometres 400 metres, was covered in 2min 30sec. He rides a ‘Perfecta’ tricycle ﬁttedwitha Soucin motor of 5hp.”

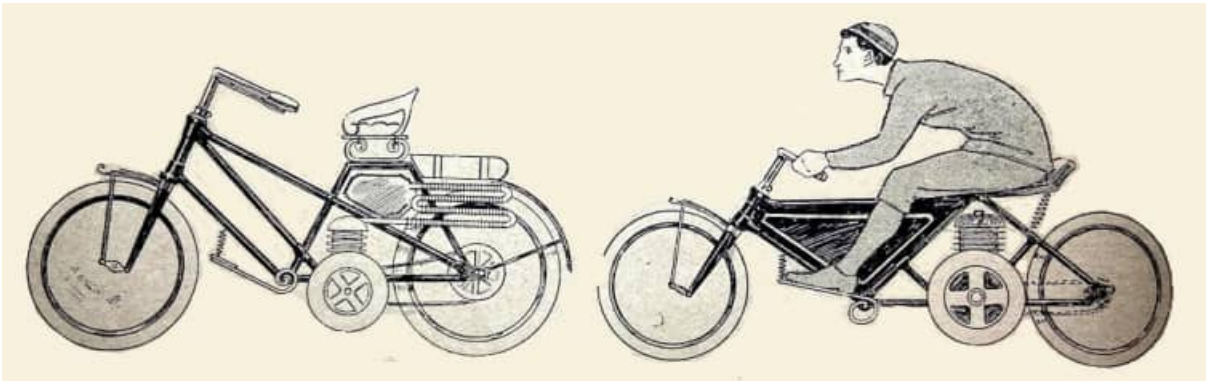
“M Gwemain, a well-known French rider, on his ‘Perfecta’ tricycle, ﬁttedwitha 5hp Soucin engine.”

“REGARDING THE FUTURE SHAPE of the motor-bicycle, most of the present forms on the market are somewhat sel ﬁshandunsociable instruments. It is rare to ﬁndtwomachines which can conveniently travel at an equal speed, and so permit of conversation. And it is often somewhat diﬃcult to adjust one’s ideas of what is a reasonable speed to the same notions on the subject as those held by others. There is also another circumstance which militates against close companionship, and that is dust—for it is diﬃcult to ride abreast if there are more than two; and, again, the side of the road has generally a better surface than the centre, which always suﬀers severely from the hoofs of the hay-motors…On the other hand, it is perhaps true that the motor-cycle gives more opportunities for chatting than the ordinary cycle, as one has not to conserve one’s breath for the next rise, whilst the control of the motor-bicycle is so simple, and, at a medium speed, the attention required is so insigni ﬁcant, that the need of a companionship on a run impresses one, even in the initial stages. Not only that, but in the event of punctures and other small troubles which will never be quite eliminated from our sport, how

much the presence of a companion tends to turn an unpleasant mishap into a pleasant opportunity for mutually acquiring know-ledge! For such companionship, the tandem is perfectly suited…The tandem form has many constructional conveniences. Petrol and water tank accommodation is easily found, and the length of wheel is advantageous for the steering. Instead of its being inconvenient for a single rider, it would be even faster with less petrol consumption, and luggage could be carried with facility…The motorcycle of the future will, I think, be □ðtted with springs to the frame, or at least to those portions of it with which one's anatomy comes in contact. But the really great question is—Are pedals required or not? And the settlement of this is a burning point. If pedals are not required, then our motor-bicycles at once assume the dignity of a single track-car, with all those conveniences which I trust to appreciate—in my old age!"



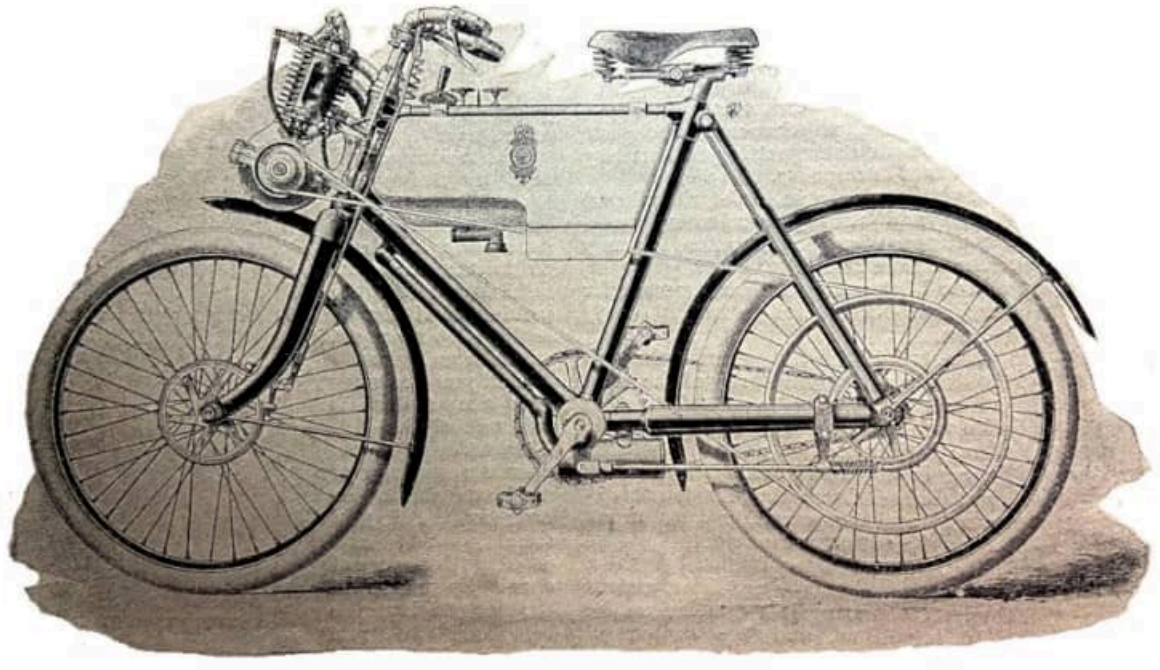
"A suggestion—the ideal tandem."



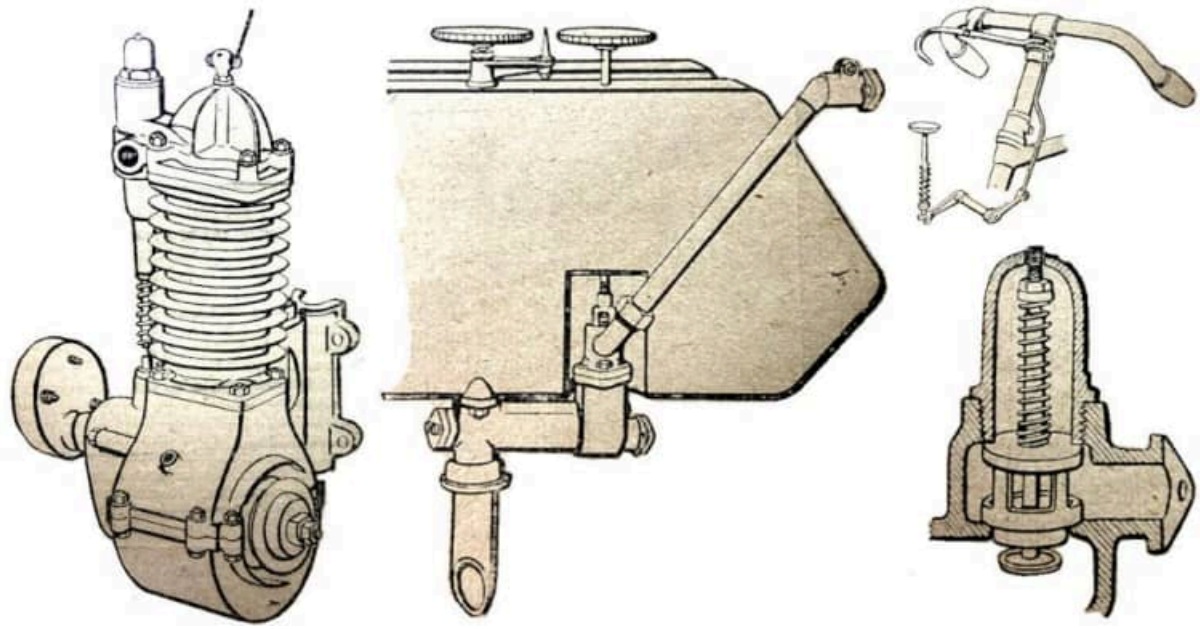
"Touring machine with water-cooled head." (Right) "The □ðier of the future."

"The manufacturers of the Royal En□ðeld, the En□ðeld Cycle Co, Hunt End, Redditch, have keenly followed the motor-bicycle question, and although experimenting with various types last season, did not de□ðnitely-decide on their design until the last Stanley Show…The engine, as will be noticed, is of an extremely robust form, and is provided with ample wearing surfaces. The power at full speed is 1¾hp; the timing gear wheels are enclosed in a special outside case, and both axles have good long bearings, with phosphor bronze bushes…The frame is specially made throughout, and has been designed purposely for a motor-bicycle. Special thick gauge tubing is used everywhere, and the wheel base has been considerably lengthened. The front forks are of a most substantial pattern, being made D section, and of great strength. The crown is the same as the one used on the Royal En□ðeld tricycles for the past 18 months, and which has given entire

satisfaction. Thebrakes are two in number; both are hand brakes, one acting on the back wheel, and the other on the front. It was deemed advisable to □ðttwobrakes,as running down a steep hill with the valvelifter raised, one brakewas not found suīicient to arrest the machine suddenly, but with a gentle application of both, this machine can be stopped in a few yards in cases of emergency…themakersclaim that by □ðttingthemotorin front of the head, not on the handle-bar, but bolted to the frame itself, they obtain the maximum of air for cooling purposes, which is undoubtedly correct; at the same time the motor is well out of the dirt. Thebelt drive diīers from the majority of machines which we have seen, being V section, and run crossed instead of open…Thereareundoubted advantages in □ðttingthemotorin front, and it certainly ensures a more even distribution of weight. Theprice is about □ðftypounds,'all on'. We have had one of these machines in use for some weeks, and have found it run very well. It is certainly the most satisfactory 1½hp we have yet come across. Thearrangement of the levers and taps is about as simple as possible, rendering driving and control most easy. Especially were we pleased with the valvelifter, which we look upon now as a sine qua non for all motor-cycles not □ðttedwithaclutch. When accustomed to its use, one can drive in traīic to a nicety without havingto switch oī the current. Gas,too, is not wasted whilst the exhaust valveis kept open, as, cf course, the suction is practically nulli□ðedandconsequentlythe inlet valve does not operate. As showing the interest of the public, it may be recorded that whenever we stopped at a hotel or in the street, quite a number of people would come around with more or less intelligent questions. One of the most common was as to whether the steering was aīected by the engine being in front. It is not; but you feel the weight of the engine naturally, and a little □ðrmergripon the handlebar is necessary."



"The Royal En□ðeld."



L-R: "The engine. Carburetter □ðttedtotank. Valve lifter. Inlet valve."

"PERIODICALLY,SAYEVERY200miles, clean out the engine with about half a wineglassful of paraīin, not petrol. Todo this eīectively you want a stand for the machine, which will allow you to pedal it when back wheel is supported oī the ground. Removethe sparking plug and pour paraīin in through the hole, □ðrsthavingdrainedoilout of crank chamber. Close hole with a cork and slowly pedal motor with exhaust lifter raised: if no lifter □ðtted,putacoin between valve and tappet rod, which will prop it open. Let it stand for a few moments and drain out paraīin. Re-charge with lubricating oil immediately and replace sparking plug."

"THERESEEMSTOBEatendency—and a particularly strong one in well-informed circles—towards dispensing with the pedals of the motor-bicycle, the idea being that, as the power of the engine becomes increased, the need for pedals diminishes, and, with spray carburetters providing a mixture which is always approximately correct, the machine will invariably be capable of being started with a run of a yard or two. But, whether these considerations will be suīicient for discarding pedals altogether is to my way of thinking, extremely doubtful. Of course, there is no question but that a more comfortable position could be found for the feet when they are at rest than is provided by a pair of pedals set at opposite radii, and a pair of footplates would be in□ðnitelybetter…Ihavebeencompelled to go in for toe-clips, so great is the jolting upon the suburban roads in my immediate locality. But the greatest use I □ðndforthe pedals, next to the starting of the machine, is in helping the engine up hills, and there is nothing more instructive than for a motor cyclist to ride a hill in company with a common or garden bicycle-pedaller. Evenwhen the latter is given the advantageof the sheltered position of being paced by the motor, he has to work really hard in order to keep it, and I have invariably found that I can drop all but the very best road-men, provided I give a certain amount of assistance to my engine."

"A FRIENDOFMINEhas recently been indulging in a series of 'consumption' tests—not of food: he knows his capacity in that line—but of petrol. He started out with his carburetter practically full and his tank quite full, the total quantity which he was able to carry being □ðvepints.Onto his machine—a Minerva type—he attached a trailer, and he towed his lady passengerover a fair give-and-take course for 53 miles. On his return, he measured up and found that exactly three pints of spirit had been consumed, so that a pint of spirit, had, on an average,carried him and

his load 17 miles. Thecapacity of his carburetter and tank would therefore enable him to cover approximately 90 miles."

"WHEN DETACHINGTHEWIRESfromthe accumulators for recharging or the batteries for replacing, it is advisable to mark or colour the wires to match their respective terminals. Thus, the positive terminal of an accumulator is invariably either coloured red, or is marked with a plus sign. Thewire coming from the terminal or coil ,generally bearing the mark P, should also be coloured red or bear the plus sign. A lot of time and □ðddlingaboutcanthus be savedwhen replacing the source of the electrical energy."

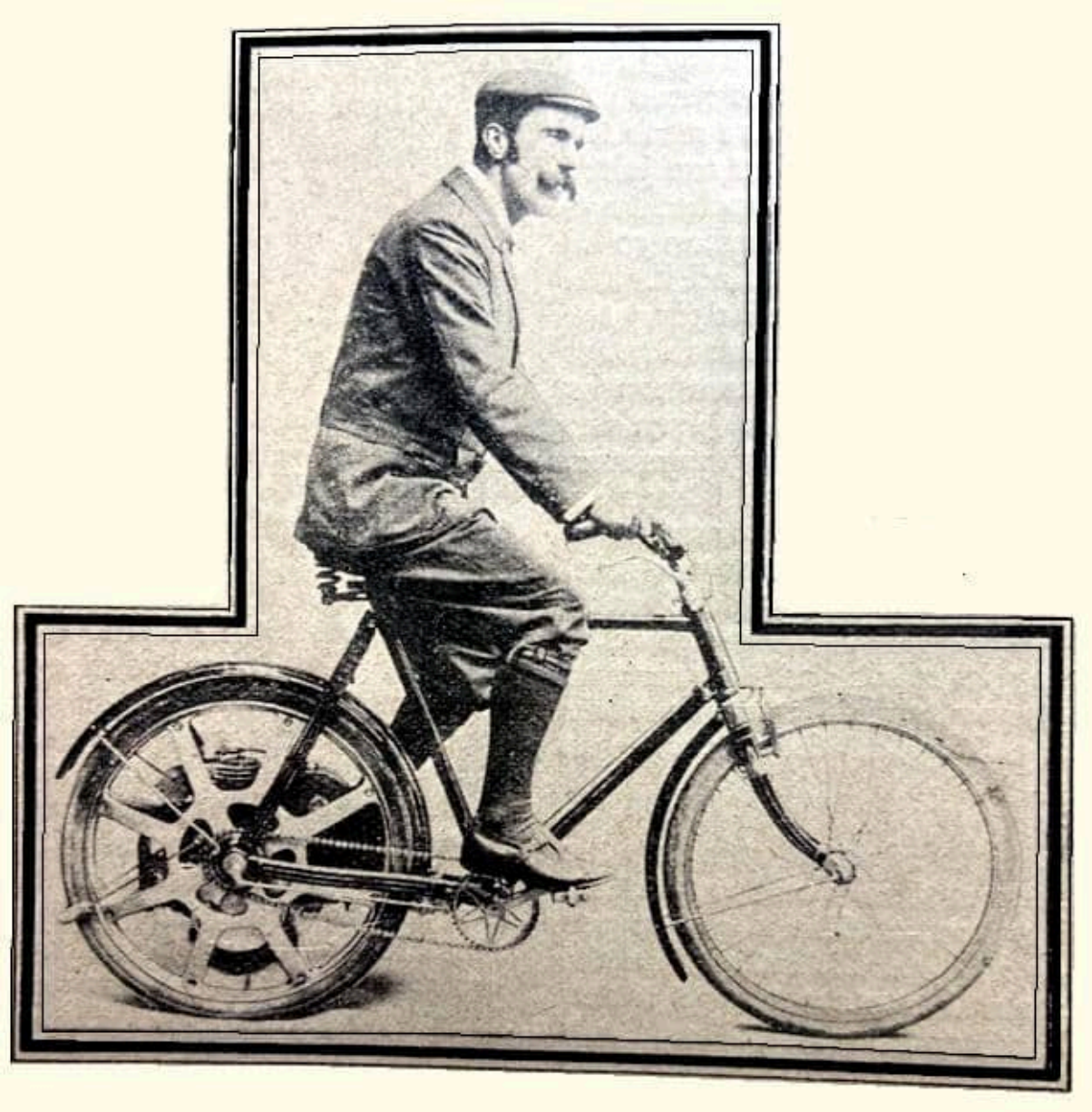
THE MOTOR-BICYCLE IN WARFARE.

By H. W. DURET.

During the Easter Manœuvres of 1901, Mr. Duret did excellent work on a motor-bicycle, carrying despatches in very bad weather.

"THE MILITARYEXPERTSOFtheContinent have for several years looked upon the mechanically-propelled road vehicle as a most desirable adjunct—if not an actual necessity—in their vast oīensive and defensive schemes, and the oīicials of the British War Oī ice have turned their attention to the same question. Thereis no doubt that in the course of time motors of all kinds will be used very extensively for both military and general purposes…asfar as we know, there has been only one instance up to the present in which a motor bicycle has been put to any practical test from a military standpoint, even in mimic warfare. Thehonour of bringing to an interesting and successful issue the experiment of utilizing a motor-bicycle for carrying despatches and scouting is due to Captain Pretty of the Suīolk Volunteer who, during the Easter Manoeuvres, had under his command a rider mounted on such a machine, and…plenty was found for him to do. It is well known that there were three columns of cyclists (movingfrom Norfolk, Suīolk and Essex)advancing during Good Friday and Saturday on London, and the main object of a speedy despatch rider was obviously to keep these columns in touch, so that each commanding oīicer might be approximately aware of the positions and movements of the others. Rapid communication was, by means of the motor-bicycle, well maintained, and important orders were conveyed, whilst between times the machine was used for scouting purposes, the rider being sent some miles in advance of the main column with orders to return and report whether any sign of the enemy existed. Under favourable conditions, a speed of twenty miles per hour was easily kept up, and even under the terrible conditions of weather and consequently bad roads with which the manoeuvres were hampered, an averagepace of □ðfteen miles per hour was maintained for as long as was necessary…insteadof being exhausted by heavy physical exertion, the rider of the motor-bicycle was always quite fresh, and thus able to quickly and intelligently deal with any immediate orders which the military necessities of the moment demanded. Theeīiciency of the rider was, consequently, greatly increased. The possibilities of a motor bicycle such as that employed by Captain Pretty were thus brought before the military eye. Country lanes and pathways impassable to cars or tricycles were easily passed through by this single-tracked vehicle and, the motive power being all contained within the back wheel and suitably protected, it was unaīected by dirt or wet. Afew tools and duplicate small parts were carried by the rider as a matter of precaution but it was not necessary to resort to these throughout the whole of the manoeuvres (so far as the motor itself was concerned), during which some 300 to 400 miles were covered by the rider, who thus described his experiences:'I started from Ipswich with Captain Pretty and his company of smart

looking volunteers at about eight am on Good Friday, a motorcar with the commissariat and men's kits following in the rear. A halt was to be made at Stowmarket, but about a quarter of an hour before that place was reached I was sent back some distance to get news of the commissariat, which had been detained through a slight accident. Much interest was caused at Stowmarket by the speedy and sudden arrival of my "Motorcar on two wheels" (as the local genius described it) when I reported the temporary delay of the commissariat to the captain. We started for Bury St. Edmunds shortly afterwards and…from here I carried my □ðrstimportant despatch, leaving the Suīolk column and striking across country to Thetford, there to meet the Norfolks advancing under Captain Fildes. There was a deal of stir at Thetford Marketplace…nearly all the inhabitants must have been abroad, including the local police-man—plump at all times, but apparently plumper than ever, as he eyed, with imperial interest, the masses of people under his authority. His hand was raised (and the street was obscured) as the throb of my trusty little engine came rapidly along. There were the volunteers from Yarmouth Town, and the place was alive with admirers of anything in khaki. "Why this haste?" asked the emperor in blue. "In the King's name," replied the, motist, "and where can I see the commander of these volunteers?" "In yon hotel," said he who could not hasten. There, to be sure, was Captain Fildes, who received me courteously. He said as he took my despatch, "How far have you come with this?" "Fourteen miles." "How long did it take you?" "Forty minutes." "That is good; one minute please," as he entered the hotel. The minute passed, and out came the captain again, with military bearing, and a small oī icial envelope in his hand. "For Captain Pretty." "Yes, sir, I expect to catch him at Newmarket, just nineteen miles from here." "How long will that take you?" "He shall have your despatch in an hour, sir." "Splendid," said the gallant captain, observing with interest the concentrated power within the rear wheel of my steed as I was mounting. "Despatch, despatch!" was ricochetted along the crowd, they had guessed the truth. There was a thud on the ground as the plump policeman stepped aside and smiled condescending acquiescence, at my departure. "Teuf-Teuf," said the spirit of petroleum. "Good day, sir," said he with the despatch. "Good day," said the commander of khaki, and I was well on the road to Newmarket. I reached that town—nineteen miles—in the hour. "Where are the volunteers?" I asked of a paddock man. "Where are the Suīolks?" "Just passed through, sir, not ten minutes since." "Thank you." "Teuf-Teuf," and oī I am again, rushing through space on my little motor without vibration, and a feeling of comfort which none but those who have experienced can realize. There are the Suīolks, for I can see them a mile ahead on the long, straight and continental-like highway 'twist Newmarket and Cambridge. "Teuf-Teuf," I am near them, and they extend for half a mile, mile, led by Captain Pretty on a tandem bicycle. "By your left," roared an oīicer. Putting the despatch between my teeth, so that all might visibly appreciate the urgency of my errand, I dashed past the column at full speed, while they cheered me lustily. I had covered thirty-six miles whilst they had done less than half that distance. I dismounted twenty yards a-head and saluted my captain, who also dismounted and ordered his men to pass on while he read Captain Fildes' despatch. I was then sent full speed to



"Mr HW Duret on his 'Singer', which he used in the Manoeuvres."

Cambridge to inform Major Cadell (commanding the whole force which was raised to attack London) of the advance of both Norfolks and Suīolks to their pre-determined destinations. Major Cadell was most interested, and left his private room with his ADC to examine what he was pleased to call my steam bicycle. "We shall make some use of you to-morrow," quoth the Major, after I had answered his enquiries. "I hope so, sir," I replied, "and distance is no object." How far have you ridden today?" asked the major. "Ninety-□ðvemiles."" Areyou tired?" "Not in the least; I rode twice that distance in one day last week without fatigue."" Capital; and you don't use the pedals at all?" "Only for starting, or up a very steep hill." "Is that so? Now with regard to to-morrow." "Yes, sir." "We will give you instructions at 7am." "They shall be attended to, sir. Good evening." This ended my □ðrstexperienceofthings military, and I was not displeased with it, or with the impression apparently created in the military mind by anything so merely civilian as my Motor and myself. Good Friday had supplied me with quite a pleasant day's outing, but Saturday had. another tale to tell. We commenced to advance southwards from Cambridge, and it was not long before we ran into rain. I was sent eastwards across country to

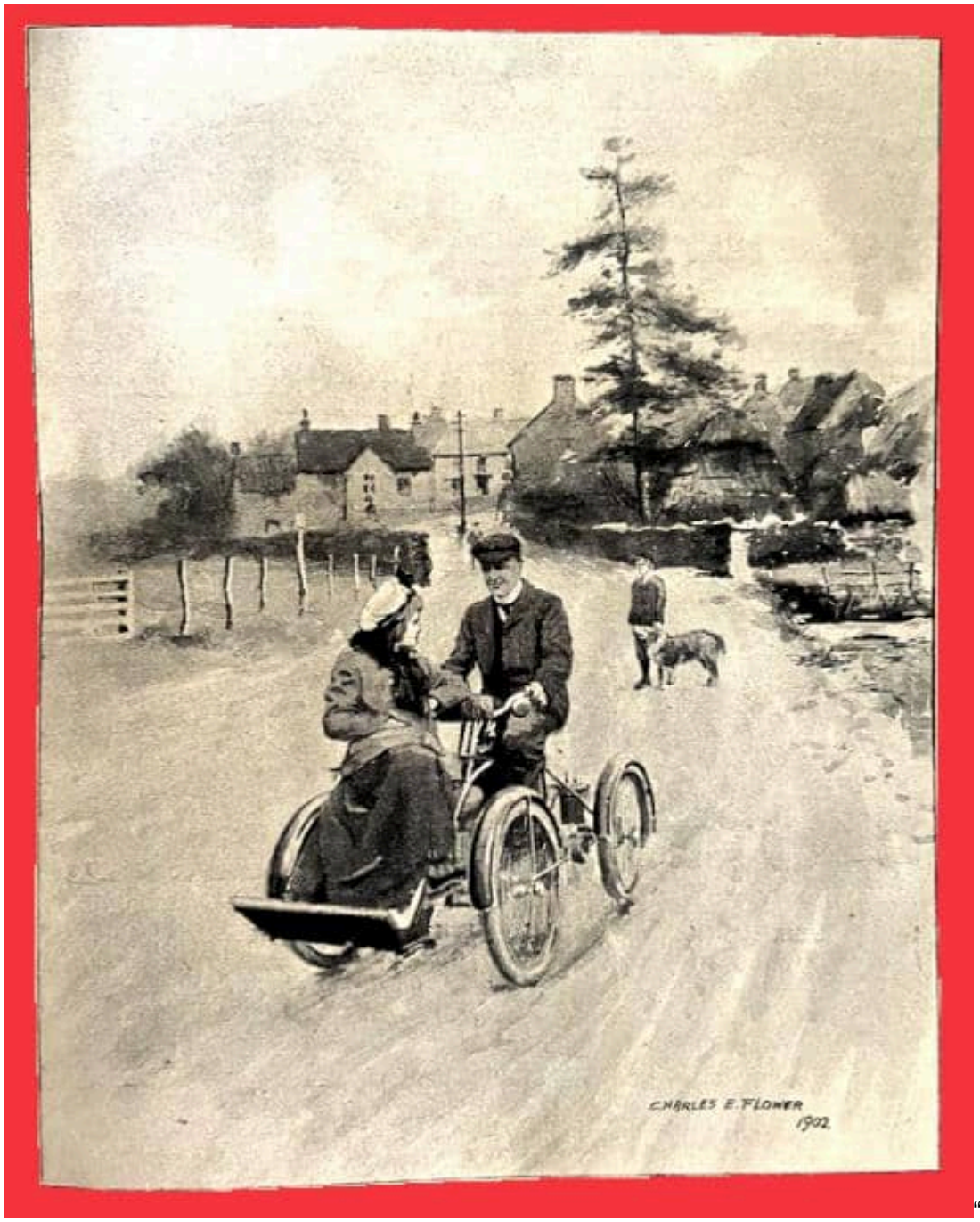
meet the Norfolks again, advancing now from Newmarket, where they had stayed the night. Finding my way by maps, I met them at the cross road close to Pampisford Junction. Quickly exchangingdespatches with Captain Fildes I made for Whittlesford Station, where the temporary headquarters of the advance were situated. Having reported the approach of the Norfolks, I was sent □ðvemilesaheadto □ðndoutif any enemy was in sight. When I returned and reported no sign of enemy, I found that the Norfolks had come up and joined forces with the Suīolks, who had already been reinforced in Cambridge by that stalwart and athletic company from the university. A smarter set than these, in their neat grey uniform tinged with pale blue, it would be hard to □ðnd. Thenthegeneral advance began, and cyclists extended for miles patiently ploughing through the rapidly thickening mud, with dripping coats and capes, and the pitiless rain beaten with strong head winds right in their faces. After many miles of this, alternately halting and advancing, the word was passed along the line that operations would be suspended for the day and a retirement made on Cambridge. This was some □ðfteenmilesback, but the order caused grati□ðcationandsurprise. Whether Major Cadell's strategy was checked at the road taken, or whether it was his consideration for his soaked volunteers that caused him to order the retirement, I do not know. In any case, all were prepared to do their duty regardless. of results, though the temporary release was, in most, if not in all instances, quite appreciated. For my part, I made straight for Cambridge and a bath, covering the □ðfteenmile;in □ðftyminutes, through rain and wind and roads like rivers. This speaks well for the possibilities of the motor-bicycle, which will travel at good speed under such circumstances, with immunity from sideslip and regardless of weather. The next (Sunday)morning we were oī again in good time, and my principal work was to convey to the Essexcolumn, under Captain Christie, the orders of Major Cadell for the next move. This meant carrying a despatch between 30 and 40 miles to the neighbourhood of Ware or Hertford, getting through the enemy's lines en route. This I managed in capital time, in spite of the wretched condition of the roads, left from the previous day's rain, and I found Captain Christie and his men just north of Ware. I was stopped by the "enemy" but escaped by a ruse almost worthy of De Wet, I think [Christiaan de Wet was a formidable general and guerrilla leader in the Boer War—Ed]. I returned to Major Cadell by another road and met him near. Stanstead, he having advanced from Cambridge via Saīron Walden with the allied companies as rapidly as his men, fatigued by heavy roads and head winds, were able. Having handed to Major Cadell, Captain Christie's acknowledgment of orders, and the attack on Bishop Stortford being about to commence, I then became a spectator of the operations. The crack of ri□ðesbeganandroadsides and hedges became lined with soldiers—infantry unmounted—whose iron steeds were left at the nearest convenient points to the □ðringtine. Theumpires were then busy, and, as reported, declared the outposts defending Bishop's Stortford to be driven in, but as there was a stronger force behind them than Major Cadell had at his command it was concluded that the attackers were repulsed. This ended the manoeuvres, and the ride homewards was commenced the same evening and completed the next day. For my part I made for London, passing many hundreds of cyclists from the defending force on my way, many of whom beseeched me to "throw out a tow-rope." After spending the Bank Holiday in London, I made for the Midlands, and covered the 100 miles in 6¾ hours, including a stop of one hour for lunch. In summary, I had ridden as follows: 95 miles on Good Friday; 40 miles on Saturday, mostly in pouring rain; 70 miles on Sunday, over very heavy roads; 100 miles on Tuesday. A total of 305 miles without any mishap or trouble with. my motor. An over-zealouspoliceman near Bishop's Stortford caused me, through misjudging my pace, to pull up rather too rapidly, whereby I stumbled, and, the motor falling on its side, the left pedal was snapped oī. This, however, was soon replaced at the shop of a local cycle agent, and nothing else occurred during the whole time to in any way interfere with the perfected mechanism of my wonderful steed. It

had done its work well and eīectually, and was a revelation to all who saw it. Both the rider of the machine and the manufacturers received the congratulations of some of the principal oīicers engaged in the manoeuvres, during which it had been employed with such excellent results.'"

There'sa smashing yarn about the bicycle battalions and heroic motor cyclists in the 1909 features section under the heading "Ripping yarns: England Invaded!"—Ed.

"SIR,—BEINGABITOF an engineer, I have various schemes and ideas which I should very much like to put into practice if I only had the material to work upon. One of my suggestions is: Why is it not possible to make a nice little steam motor-bicycle? Something on these lines Arrange two small cylinders, one on each side of the back wheel, or one on each side of the crank bracket, something similar to the way they are placed on a locomotive, and drive direct, doing away with the ordinary cranks and foot-pedalling gear as arranged at present. Surely it is possible to build a nice little steam-raiser to □ðtlowdownin the frame which would generatesuīicient steam to travel at the rate of, say, 20 miles an hour, if necessarywith the aid of those little burners known as the 'Aetna', burning petroleum, which can be purchased at any little oil shop. Supposing the cylinders were two-inch bore and three-inch stroke, and a small tubular boiler with 'paraīin' burners, as stated above this arrangement should work very well. The tyres should, of course, be two-inch ones, and the pressure gauge and starting lever should both be on the handlebar, with brakes, as now, on front and rear wheel: In this case the motor would be started at an easy pace, and a running jump made into the saddle. The speed could, of course, be easily controlled in the case of steam, and gradually put on as desired. The weight, I do not think, would be any more than the present makes, and if any rather on the lighter side, as it is not necessary to carry a boiler of such huge capacity as 100 miles or so. A stop now and again would be a pleasant change from sitting in one position for, say, two or three hours at a time, because, unless the weather is of a warmish tendency, one is very chilly on a motor-bicycle…Thegood old steam engine we have always with us, and the control is so easy—think of it!—just ease that tap a bit and she either glides forward or retards herself as the case may be. There is no doubt that the single tracker is the most easily stored and tractable mount, more especially as it is bound to be to a certain extent a □ðneweatherhobby, and it is on those nice little long jaunts that one realises the beauty of a small auxiliary power to give one a lift up behind.

V0 Smith.

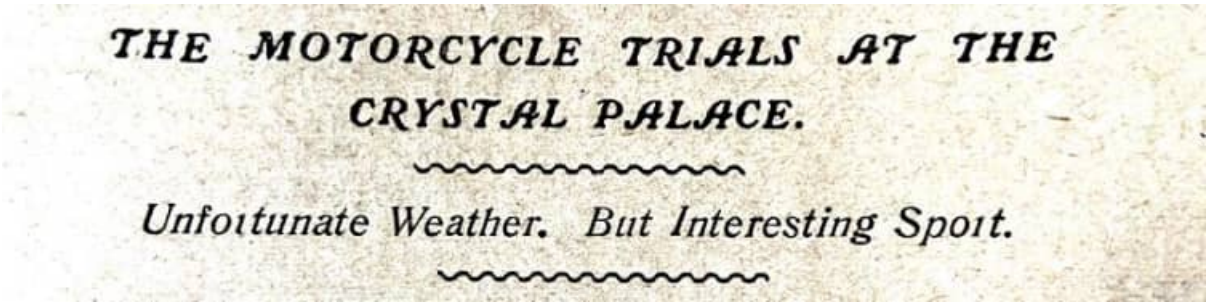


“An enjoyable experience: their □ðrsttrialtrip.”

“SIR,—WITHREFERENCETOpedallingin motor cycling races. I think this a question which requires carefully thrashing out at once, while the thing is in its infancy and when de□ðnite arrangements can be more easily arrived at than when it has become a recognised feature at race meetings, etc…Onecan hardly expect the same rules to apply in an open motorcycle race on the track that would be used in a competition arrangedsolely for the advancement of the trade. I certainly think that pedalling should be restricted to certain limits at the actual start of a race; the race then becomes a test of skill, and not a trial of physical endurance. In proof cf this I might point out that Messrs SFEdgeand C Jarrott, when they rode in such races, perhaps on occasions riding identical machines, if one missed a single explosion it generallylost him the race. Again, I think, that some test ought to be arrangedin which the use of the pedals is altogether forbidden. This, I think, would prove interesting, and should he bene□ðcialtothetrade

as it would giveprospective buyers a better chance of making a selection from the numerous diīerent makes…Ihaveno doubt that this section of a automobilism (which will ultimately become the largest) will be taken in hand in the near future by the Motor Union, to the bene□ðtof all concerned.

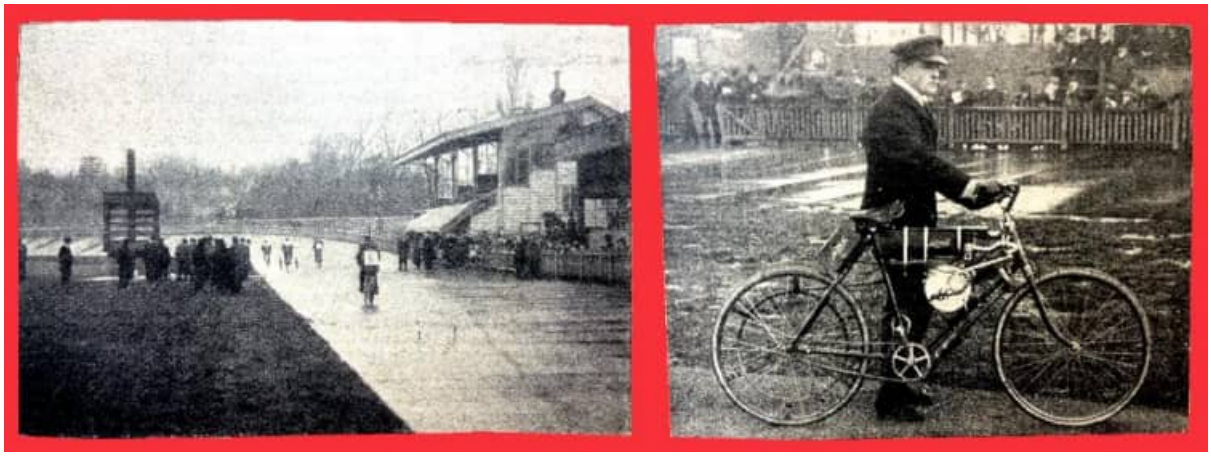
TA Logan.



THE MOTORCYCLE TRIALS AT THE CRYSTAL PALACE.

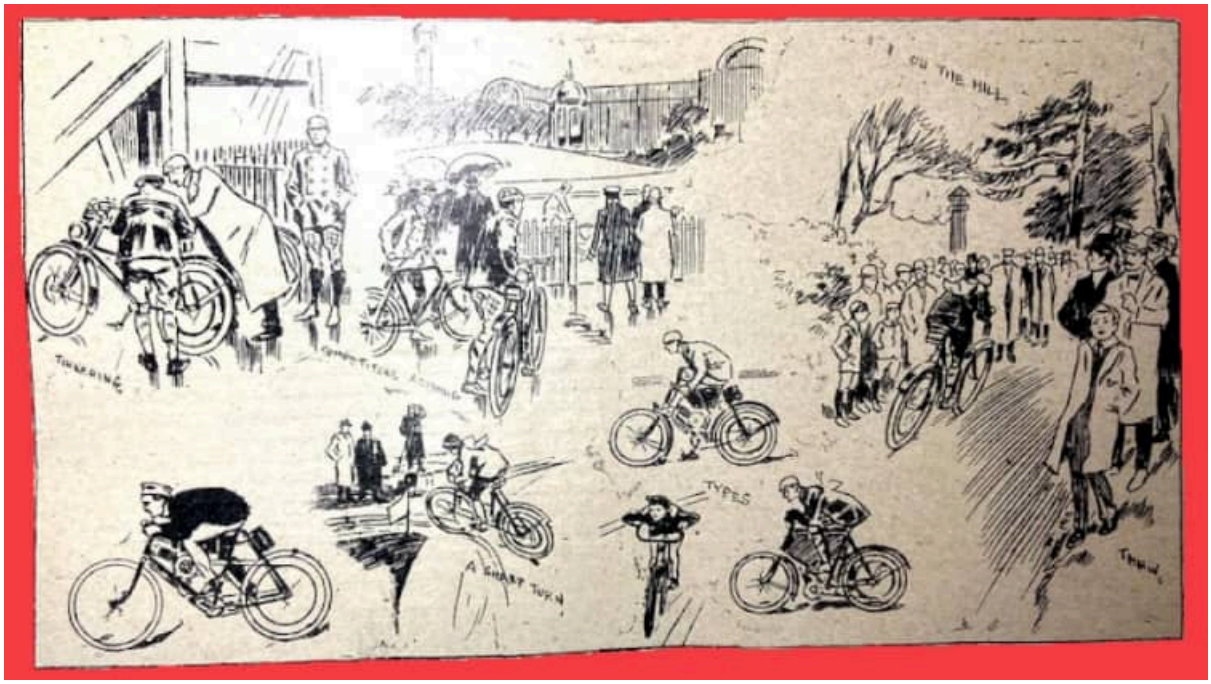
Unfoıtunate Weather. But Interesting Spoıt.

"CONSIDERINGTHEINCLEMENCYofthe outdoor conditions there was quite a respectable crowd of onlookers, and the trials were followed with keen interest from start to □ðnish.Thelove of sport showed itself when two of the competitors were pitting their machines against each other, and the hill-climbing tests quickly drew the crowd away from the lesser excitement of the last of the track circuiting. An entry of twenty-three competitors was secured, and of these □ðfteenbravedtheelements. Most of the prominent machines were represented…There was no limit to the power of the engine in the case of motor-bicycles, and the only tricycle which competed came inside the three-wheeler limit of 2¾hp. Under the eyes of the observers petrol tanks were □ðlledtotheir utmost capacity, and the □ðrsttwomachines ready were sent on to the track to reel oī a saturating sixty laps. Thesewere the Singertricycle and the Singerbicycle, ridden respectively by E Perks and F Birch, the inventors of those clever machines. A good 20 an hour was easily attained. Then there went on B Yates (2hp Humber), JC Nixon (1¼hp UMI), followed by H Martin, on the 2hp Excelsior. Then we saw a bit of pace, for Martin took the wet and somewhat slippery course at 27 an hour. AT Nixon (1¾hp Hewetson), W Parry (1¾hp Minerva), CR Abbott (2⅛hp Strettons), JLeonard (1¾hp Werner), E Permen (1¾hp En□ðeld),AC Wright (1¾hp Ormonde), GV Rogers (2hp Mitchell), EH Arnott (1¾hp Werner), A Westlake (2½hp Chapelle), and TBAndre (1¼hp Derby), were the other starters. After going for a few miles Rogerssuddenly reversed his leather cap, pulled it over his ear and gavehisMitchell her head. Thepace became warm and looked a deal warmer than it was. It was noticed that Rogerswas nearly holding Martin, but after a little while Martin seemed to ease slightly. Rogersnow put his arms akimbo and crouched low, and his pace steadily increased to nearly 30 an hour and the crowd entered into the spirit of the contest.



"Doing their sixty laps." (Right) "GV Rogers, the □ðying American." The trials were staged by the (pre-'Royal') Automobile Club and the Metropolitan District Association of the Cyclists' Touring Club.

Martin certainly was not going. so speedily as we have seen him do, but maybe he had an eye to the need for keeping his engine cool for the hill tests. Moreover, the Mitchell was □ðying light having light wheels and tyres, unprotected by mudguards. It was very noticeable that despite the comparatively dangerous state of the track and the pace attained by some of the men, there was not a single suggestion of sideslip. The two Singers kept close together for the whole way and made an excellent show. As each man □ðnished his allotted task of 20 miles on the track within an hour, he was directed out of a gate (without dismounting) over some loose rubble, and up the hill to the foot of the North Tower; at the top he turned and rode to the bottom, and then essayed the hill twice more, returning to the track. On the hill the Singers again made a good show, being the only machines which actually climbed the hill without being assisted by the pedalling of the rider. H Martin, on the Excelsior, rode the hill twice without pedalling, but at his □ðrst essay he switched oī at a nasty patch of grease, and had to give two or three strokes of the pedals in order to get the engine well going again. The Mitchell had a high gear and a loose belt and was thus put out of the hill tests. On returning to the track, tanks were again □ðlled and the quantity to do this was noted, and thus the consumption of petrol was ascertained. The mishaps were few; Westlake had a wire jolt loose, Abbott had trouble with his sparking plug, Wright broke his belt, and JC Nixon and JJ Leonard failed to □ðnish the track ride, the latter discontinuing because his 'observer' wrongly told him that he had □ðnished his distance." **RESULTS.** Hillclimb: 1, B Yates (2hp Humber); 2, F Birch (Singer bicycle); 3, H Martin (2¾hp Excelsior); 4, EH Arnott (1¾hp Werner); 5, AT Nixon (1¾hp Hewetson); 6, JC Nixon (1¼hp UMI). Fuel consumption: 1, F Birch (Singer bicycle); 2, B Yates (2hp Humber); 3, GV Rogers (2hp Mitchell); 4, E Perks (Singer tricycle); 5, TB Andre (1¼hp Derby); 6, AT Nixon (1¾hp Hewetson). For the record, the Motor Cycling report included the times for each contender and their fuel consumption—B Yates was timed at 1min 35⅕sec; F Birch used 1pt 14½oz. [All well and good, but the consumption test was over 20 miles plus three hillclimbs. And as the report didn't include the length of the hillclimb the times taken and fuel used don't mean much. Far be it from me to be judgemental but they wouldn't have been that sloppy on the Blue 'Un.—Ed] Pedals were not used in ascending the hill by the following, viz: No 5, Mr E Perks, on Singer motor-tricycle, did not use his pedals during any of the three ascents. No 7, Mr B Yates, on Humber motor-bicycle, did not use his pedals during the third ascent. No 6, Mr F Birch, on Singer motor bicycle, did not use his pedals during the third ascent. No 9, Mr H Martin, on Excelsior motor-bicycle, did not use his pedals during the third ascent."



“Incidents of the day.”

“MR EH ARNOTT, OF WERNER Motors, writes concerning the amount of pedalling done in the hill-climbing portion of the Crystal Palace trials, and adds: ‘I competed in these tests on a 1¾hp New Werner, and the amount of pedalling I did was limited to, I should think, certainly not more than 5% of the distance. I rode every individual part of the hill without any assistance from the pedals, but did not make a complete climb owing to the carburetter of my machine having had a knock while on the journey from town, which caused it to leak very badly, and made it impossible to keep the mixture at all constant. If I had pedalled all the way up the hill, my times would have been very much faster. Davis, Allen and Co, who handle the Mitchell, also wish to clear up wrong impressions. Mr G V Rogers, who rode their machine, accomplished the 20 miles, they state, at the average rate of 39½, miles per hour, reeling some of the miles oī in 1.40 and 1.41. This rider, who has twice accomplished the mile in 1.16 on a special machine, did not go his best pace, but he passed all competitors frequently. In turning oī for the hill-climbing contest, the crowd fouled him, and he dismounted, and further on he made another dismount, thus losing over a minute, which has evidently been taken into his time. Also, when being pulled oī his bicycle before crossing the track, the jockey pulley was knocked down, thereby loosening the belt, which continually slipped in going up the hill. In consumption of petrol, the Mitchell was put down as third.”

“IF THERE IS ONE IMPROVEMENT above others that is urgently wanted, it is a two-speed gear on the engine. Given this, there is no hill on an English road that could not be got up with even a so-called 1½hp engine. It must, above all things, be simple in its construction, and not likely to absorb appreciable power through friction.”

“WE HAVE ALWAYS HELD motor-tandems in good favour…We are glad to note that the type is being by no means neglected, as an instance of which we illustrate a roadster-tandem which has been converted by Mr G Calvert, of Woodville Road, Mildmay Park, into a satisfactory motor-tandem. The engine □ðttedis of 3in bore and 2⅝in stroke, with outside □ðywheel, and is suīiciently powerful to take the machine and two riders up a stiī hill at well over twelve miles an hour. The arrangement of the tanks, battery cases, and other parts is excellent, and the owners of the machine are thoroughly satis□ðed with it. There is a lot of pleasure to be gained by

a couple of riders on one machine, and as the tandem is usually strongly built, we shall not be surprised to learn that Mr Calvert is doing a big business in the parts necessary for the conversion of tandems into motor-vehicles, or that other makers are doing the same thing."

"The Roadster Motor Tandem referred to in the above paragraph."

THE NEW TYPE WERNER.

A clear description of the features distinguishing this pattern, together with some passing references to the front driver.

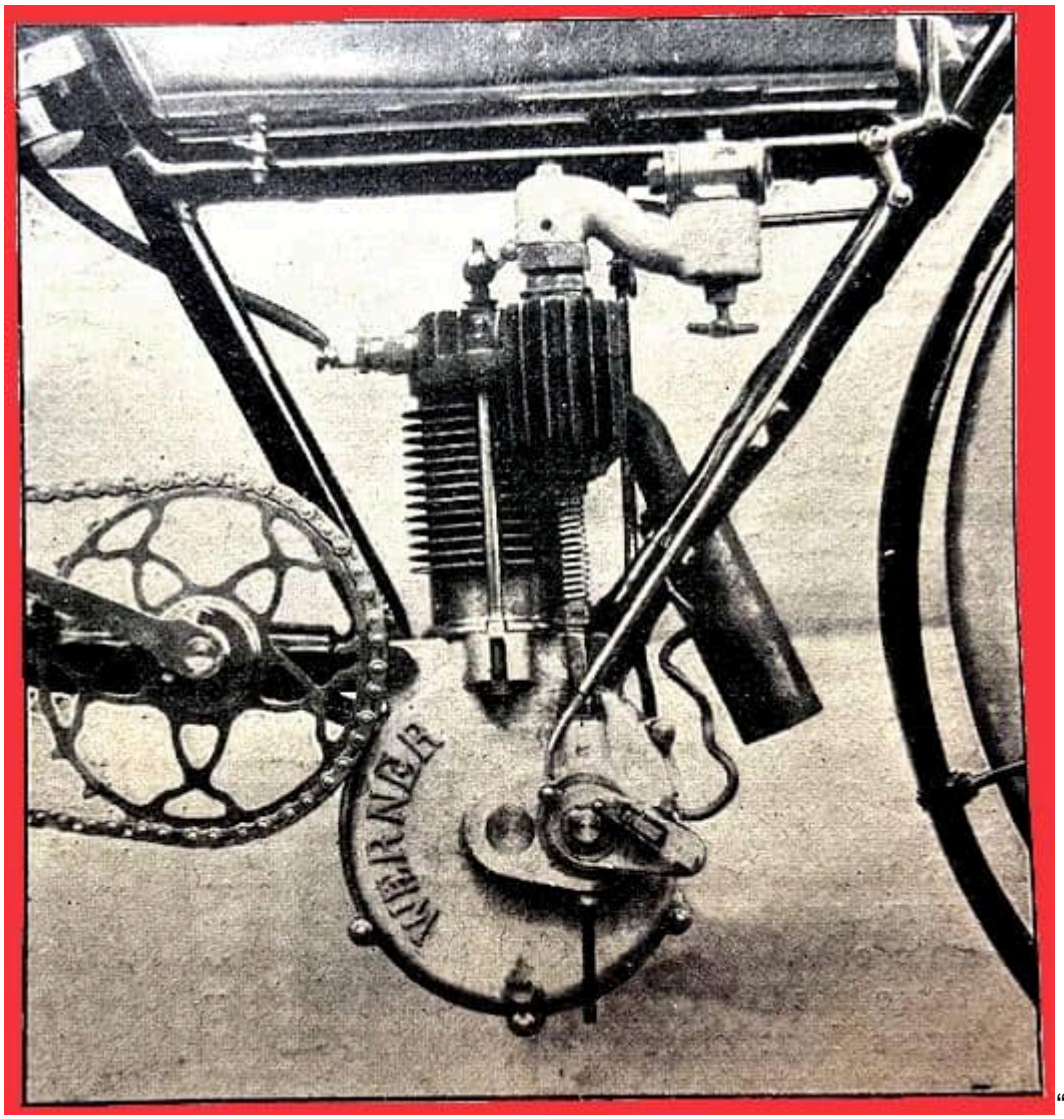
"THE WERNER, THANKS TO the perseverance and energy of the Werner Freres, did much in the earlier days of the motor-cycle movement to familiarise riders both here and upon the Continent with the motor propelled pattern of cycle. Pioneering work is always diīicult, and early riders of the front-driving Werner had to pass through the ordeal in much, the same way as fell to the lot of the early pioneers who sought to popularise the ordinary type of bicycle. Up to the present season all the machines constructed by Werner Freres have had the engine □ðtted over and have driven the front wheel, or perhaps it would be more correct to say, all the machines put on the market have been of this type, as many experiments in all sorts of positions have been carried out and the results carefully noted. The 1902 machine, however, is a most radical change, and embodies many special features. Perhaps the most important is the vertical engine, the advantages of which are now largely recognised, and need not be gone into,

as nearly every-one is familiar with its virtues. It might be of interest to our readers if at this point we give a few general particulars of the construction and performances of the Werner in its childhood days—if we might so speak. This will bring into greater relief the features and capabilities of the 1902 machine. The motorcycle enthusiasts of the late nineties—they were few and far between—however, were then familiar with the queer looking and fussy little machine then making its debut in the streets of London. On the Brighton road, and other classic routes, one often met it □ðittingabout, but, truth to tell, more often than not one made its acquaintance at the road side in a state of collapse, short of wind or some other trouble, or maybe its

The 'New Pattern' Werner, with its spray carb, coil ignition and engine in the 'proper' position marked the advent of the motor cycle, as distinct from the motorised bicycle. Levezvotre verre aux frères Werner!

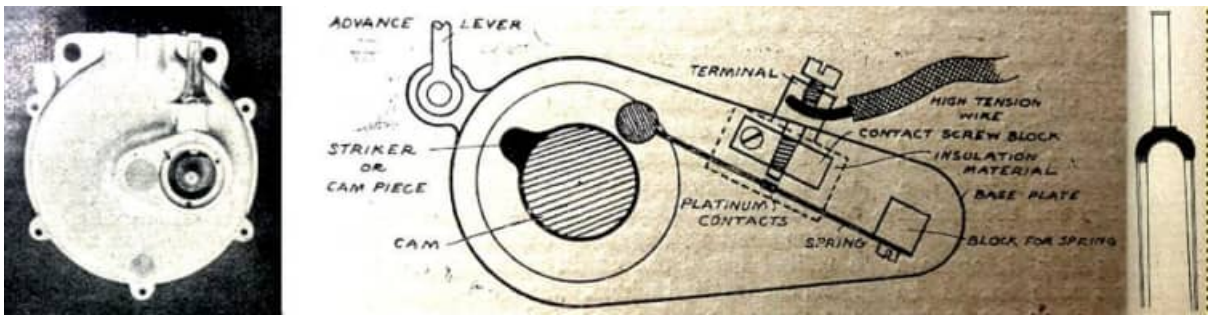
riders were struggling with a refractory ignition lamp trying to infuse a spark of life into the thing. They were tricky and exasperating things, the Werners of those days, and one has to be an enthusiast indeed to enjoy the pretty frequent prospects of being 'hung up' on the road. In such cases the remarks of the country yokels are not always calculated to smooth one's temper when wrestling with the motor. In one instance within the writer's experience, the special quali□ðcations of the machine were summed up in the terse sentence, 'Rare puīers and smellers them things be, mister,' from one specimen of the genus Hodge. Well, like most things mechanical that have a future, there was a certain degree of crudeness, or as a practical engineer might say, an amateurish cut about the □ðrst samples, but nevertheless they could with intelligent handling be got to 'go'—on a fairly level road, at all events….The motor was, in principle, the same as that of to-day, namely, a four-operation internal-combustion engine. There was no such luxury (some readers may question the use of this word) as the electric ignition system, however, and the □ðring was performed by means of a red hot tube of nickel or platinum. Regulation of the speed was only possible within a limited extent, as the ignition could not conveniently be advanced or retarded. The power claimed by the makers was one horse power (on the brake test this □ðgure required a big discount knocking oī). Strangely enough, outside □ðywheels and a cased-in crank were adopted in the □ðrst motors. This is interesting in view of the fact that there is a good deal of discussion going on as to the likelihood

of a return to this system. The motor itself occupied the familiar position over the front wheel, driving this through a lightly built pulley attached to the hub, but outside the fork end bearing. The maximum speed obtained reached 15 miles per hour on good level roads, and hills—even slight ones—required plenty of pedalling to get up. The question of the frame has received very careful attention, and Messrs Werner very strongly condemn the practice of □ðttinga motor to what is merely a strengthened bicycle frame, as the strain on a motor-bicycle very-diīerent from that of the pedal propelled machine. From the point of view of construction they contend that a motor-bicycle should not be looked upon as a bicycle at all, but as a light two-wheeled vehicle—the engine and transmission to be considered □ðrst and the frame then constructed to suit, and not the reverse, namely, a motor to suit a given frame. The illustrations herewith show the new type Werner frame and the method of □ðxing the engine. The design has been registered. Apart from design, great care has been exercised in selecting the most suitable materials, and strength combined with lightness has been the aim of those responsible for its construction. It will be noticed that the motor is □ðxed in a particularly rigid part of the frame, the apex of the system of tubes being completed by the crank case, the two bolts through which form the main supports of the motor. This will strike one as being a sound mechanical arrangement.



"The New Type Werner: method of □ðxing the engine."

Thenof course there is the additional stiīening tube between the main tube and diagonal, giving the necessary strength independent of the motor connection. Thefront forks and crown have received special attention. It will be seen in the illustrations that a very simple method of □ðxing the combustion head and cylinder to the crank case is adopted, two minutes being suīicient to take all three apart. Thelubrication of the engine and all its bearings has not been neglected, and a pump is □ðttedinaconvenient position, so that it is not necessary to dismount in order to lubricate. A supply of lubricating oil for about 450 miles can be carried. Thetransmission from the engine to the driving wheel by a □ðatbelt,isone of the most noticeable departures. from the beaten track, and Messrs Werner Freres express themselves as being satis□ðedwiththe result. It was, of course, thoroughly tested against other types before being □ðnallyadopted,asthe eīectiveness of the transmission is vital to the success of a machine. Theignition is, of course, electric, and the spark is obtained. by the accumulator and induction coil system. The accumulator is unusually large for a bicycle, and shows 4.2 volts 20 ampere hours. All wires are visible and it is a simple matter to see that they are insulated. It still remains to be proved that a better method exists. Thecontact breaker, which is of the make-and-break type, can be seen in the illustration. Thecarburetter is of the spray or pulverising type. It is claimed to be free from the defects of the original surface pattern—as to its being more or less economical in petrol consumption than this it is too early to speak yet, perhaps; it is □ðxedinafavourableposition near the combustion chamber, where it will get the advantageof the heat in promoting' vaporisation. Regardingthe brakes, two are □ðtted,aback-pedalling hub brake on the rear wheel and a hand applied rim brakeon the front. Thetyres are 2in section, Clipper-Michelin, Dunlop, or Clipper motor-bicycle tyres. Thesizesof the frames are 22in and 25in. Eīicient mudguards are now provided, a point formerly overlooked, and a good spring saddle is now □ðttedas desired; a maximum speed of 30 miles per hour on good level roads has been reached, and hills of one in ten can be taken comfortably with the 1¾ horse power engine. Themachine described above is built completely at the Werner Works, Paris, but Messrs Werner Motors are now putting upon the market a similar machine □ðttedwiththeParis-built engine and accessories, but the frame and the whole of the bicycle parts are built in Englandof the best materials and the highest possible □ðnish.Thediīerence in price is £7 10s, the French machine being £45 and the English 50 guineas. Thediīerence in speci□ðcationliesin the brakes, the fork crown, the sizes of the frames and the special method of building up the belt pulley. Either a back-pedalling or a hand applied rear wheel band brake is □ðtted,andahand applied front rim brake. Thefork crown is a three plate, and the sizesof the frames are 22, 24 and 26in. We must not omit to mention that MessrsWernerthat their Motocyclette is the result of practical experienceand is in no sense an experiment."

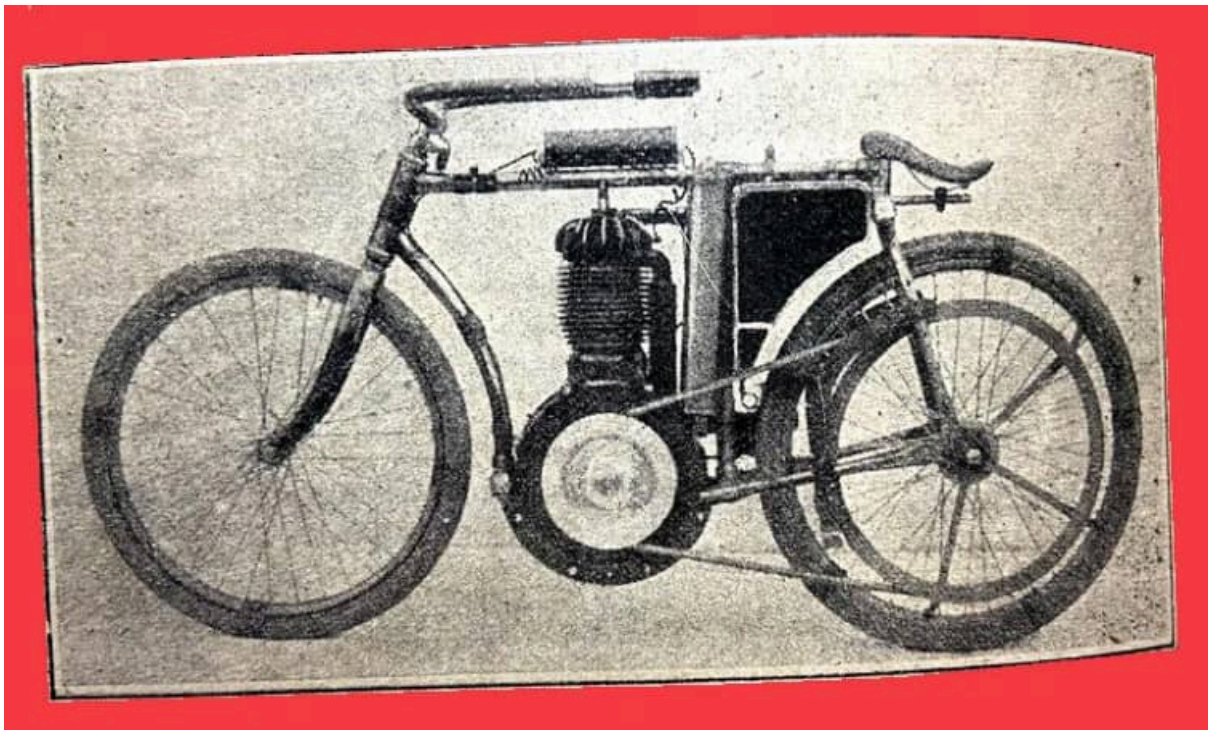


L-R:"The exhaust valve lifting device. Positive make contact breaker. Special arched front fork crown"

MESSRSSSMITHANDSONS,the well-known horologists, of 9, Strand, WC, have just completed the □ðrstspecimenoftheir new patent combined motor chronograph and speed

indicator. The dial is arranged in two ways. In the □ðrstanyspeedfrom 1 up to 150 miles an hour is allowed for, whilst in the other, the maximum speed provided for is 60 miles an hour. The method of ascertaining the speed is extremely simple. Thus the second hand is started from zero on passing a mile-stone; at the next stone the hand points, for example, to 45sec, and on the outer ring of □ðgures80milesan hour; at 1 min, the outer □ðgureis60miles, and so on, whilst if the hand has completed one revolution, and has reached, say, 1min 30sec, one looks at the second ring of □ðgureswhichapplybetween one and two minutes, and reads 40 miles an hour. The chronograph is exceeding useful. It is started from zero when the car starts running by pressure on a stud, and this stud is pressed at every stop and restarting of the car, so that at the end of the day the actual running time only has been recorded, one's ordinary watch telling one the total time including stops. We believe that a watch is being made to include the chronograph and the speed indicator in one instrument."

"IN WRETCHEDWEATHER, sowetand windy in fact that, after some time, racing was stopped, the competitions at Nice for 1 mile and 1 kilometre were commenced on Thursday. Osmont on a De Dion-Bouton tricycle (8hp) covered the mile in 1min 9⅗sec, beating his own time made at Deauville last year by no less than 5⅖sec. Williams on a 3hp motor- bicycle accomplished the distance in 1min ⅗sec. Cissac's motor-bicycle record standing start was also beaten at Nice on Thursday by Williams, who on a Clement bicycle accomplished the distance in 1min. 27⅗sec."



"The Driver racing bicycle, which weighs 200lb. The motor develops 7hp at 1,200 revolutions per minute, and, it is said, can be run as high as 1,600rpm. The maker, W Driver, Philadelphia, anticipates securing records with this machine." [You'll □ðndlotsofpacers near the start of the Melange page—Ed.]

"WE HAD AN INTERESTING chatwith Jvan Hooydonk last week, immediately after he returned from a trip extending from Dieppe to Nice—across France, in short. He had accompanied Mr Jo Pennell on this interesting journey as far as Nice, whence that enthusiastic motist intended to continue to Florence by a devious route, making the journey one of over 1,000 miles. Hooydonk, who returned by train, owing to business calls, told us that the ride of 800 miles—801 miles, to

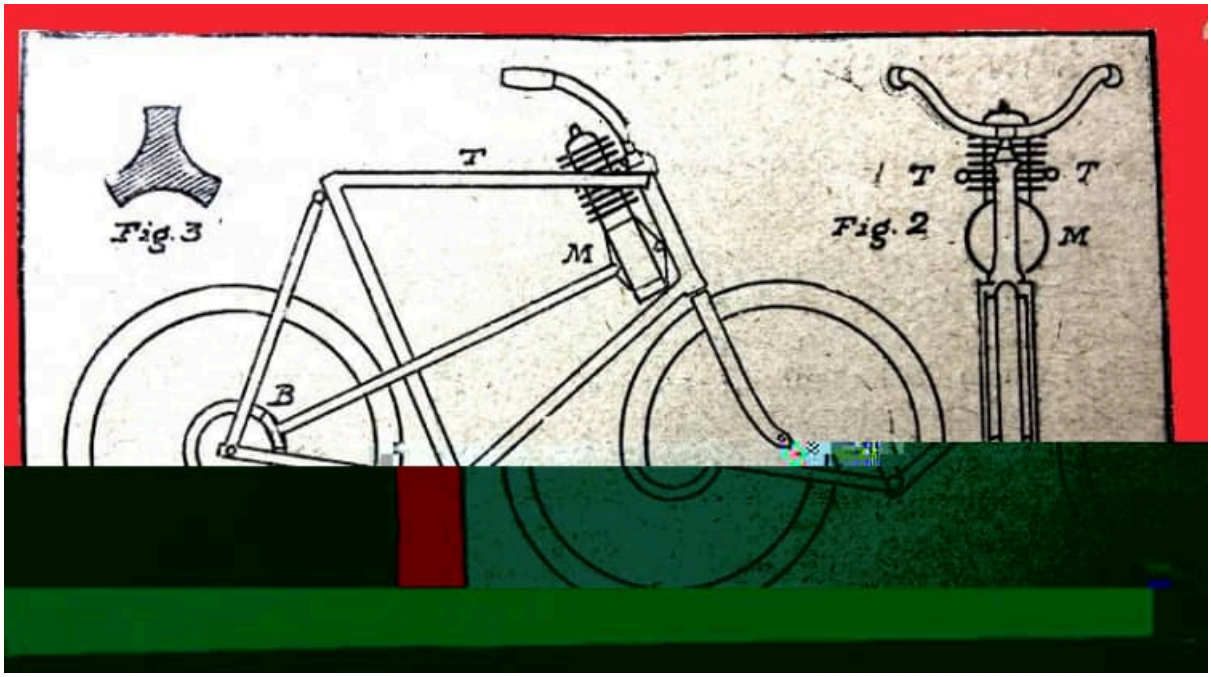
be exact, shown by cyclometer—occupied exactly a week without any trouble, and only four fresh supplies of petrol being required en route, the spare tank being full on arrival at Nice. The start was made from Dieppe on March 31st, Mr Pennell having ridden to Newhaven the night before,. The □ðrstdaywaswet, and a stop was made at Evereux,about 100 miles distant, for the night. Next day, which was still wet, they went through Dreux to Chartres for lunch and □ðnished up at Orleans for the night Thenext day Gien, Cosne was passed, following the Louvre, River, and so on to Nevers. Moulins was the objective next day, and en route they had a peculiar experience. The Allier river had over□ðowedfor300yards, and it meant driving through three feet of water. At Moulins they had their □ðrsttasteofhills. Entering La Pallisse they came upon a very steep hill that was reminiscent of Devonshire,and then made for Roanne.Shortly after leaving this town they started climbing Mont Tarrare,which seemed about 20 miles long without a break. A. stop was made at Tarrarefor the night, thus making the longest run—nearly 200 miles. Theroad was practically down hill to Lyons,where the accumulators were recharged, and the stopping place for the night was Valences. Thefurther journey, via Orange,Frejus and St. Maximin, was marked by heavy climbing and surmounting the Esterel ere they descended into Cannes. Thearrival at Nice, about twelve miles from the Italian frontier, was made at noon on the Sunday."

“The motor cyclist should lose no time in making himself perfectly familiar with every in□ðnitesimal portion of the machine that carries him.”

“ONE OF THE FEATURES of the Chicago Show was an electric bicycle, which is claimed by the maker to be capable of keeping up 14 miles an hour for 200 miles. The battery weighs 40lb, and the complete machine 67lb. This battery is a tight metallic construction without plates, acids or lead, and it acts without giving oī fumes or jarring out of liquid. The little motor is incased and is □ðtted at the bottom bracket, driving direct to the back wheel by chain; there are no pedals. The makers are the North Western Storage Battery Co, Chicago.”

“WE ILLUSTRATE A NEW transmission gear—an elastic shaft—which has just been protected by Mr F W Aston, Tennal House, Harborne. As will be seen from the diagrams, the motor is mounted just behind the steering pillar transversely with the frame, being clamped between the two members of the double top tube (TT, Fig 2). The power is transmitted direct through the shaft, MB, to the bevel, or worm gear, B, on one side of the rear hub. The shaft, MB, is of considerable length, and being constructed with such cross section as that indicated in Fig 3, possesses a

very large torsional elasticity, and is so designed as to take up, by reason of that elasticity, the explosion shock of the motor drive, which has hitherto rendered direct driving without slip impossible on motor-bicycles. A few advantages claimed for this design are: Direct drive without loss of power due to the slip of belt or clutch; motor well away from mud and dust, in the best cooled and most get-at-able position on the frame, all the important parts being accessible from the saddle. No restriction to the length of bearings; simplicity and lightness of gear, which may be entirely enclosed and run in oil; and even distribution of weight."



Cardan shaft which served as a cush drive…now that's clever.

"TO CROMER ON MOTOR BICYCLES—A short account of the Easter Tour of two members of Motor Cycling's staī, by one of them…The party was to consist of four, but one decided to go on a car, so that left three, while as another could not get away on Thursday evening only L Perman was left of the London brigade, while I represented the Midlands. The Catfordian rode a Royal En□ðeld machine, while the writer bestrode a Quadrant bicycle □ðtted with a 1½hp Minerva engine and having the Birmingham □ðrm's latest speciality—the one lever manipulation. Our meeting place was the Sun Hotel, Hitchin, and under that hospitable roof we foregathered on the Thursday night. Leaving Hitchin about 11 o'clock, we sped along under a cloudless sky and over splendid roads until nearing Newmarket, when both of us were troubled with defective 'sparking', caused, as we quickly ascertained, by oil getting on to the trembler. We were soon aboard again. After lunching at Newmarket we had a glorious run to Thetford, the 19 miles which separate these two places being covered well inside the hour. At Thetford, in addition to a welcome cup of tea, we were able to replenish our supply of petrol. On leaving this picturesque township we ran on to roads as nearly perfect as one can well desire at this season of the year, and made rapid progress until Perman had the misfortune to break the trembler blade, an accident which caused some 20 minutes' delay. It was nearly dark by the time we reached Wymondham, and the keen, bracing air having sharpened the cravings of the inner man we decided to stay the night, and comfortable indeed were our quarters at the Red Lion Hotel. On Saturday morning we were early on the move, as see intended reaching Cromer in time for the motor trials at 11.30. The rain in the night had made the roads rather sticky, but good progress was made to Norwich. Here we had a look round the ancient city, and started again soon after

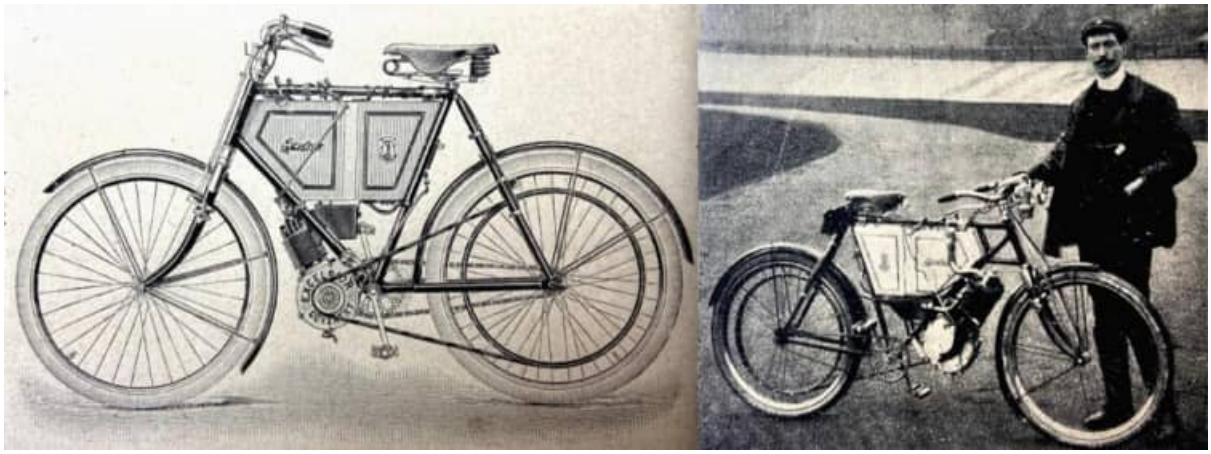
ten o'clock—Gunton Park, Lord Suffield's beautiful place, being reached at 11.30 although the roads for the last 12 miles were in an awful state—the result of metal patching and heavy rain, The Marlborough House Hotel at Cromer is a capital headquarters for motists, as, in addition to being well attended to in every respect, both petrol and lubricating oil may be obtained in any quantity; the proprietor of the hotel, Mr F W Rogers, always keeping a large supply in stock. Sunday was an ideal Spring day, and under most pleasant conditions we commenced our return journey. This was made via Fakenham to King's Lynn, where we parted company, Perman journeying on to Ely, and then through Cambridge to town, while the writer proceeded by way of Spalding to Nottingham, and thence to Birmingham. Perman covered a distance of 310 miles while my total was some 40 miles more. During the whole journey the troubles we experienced were only of a trifling nature, while the average mileage per hour was very good considering the heavy wind which faced us for at least two days. It. was an ideal holiday, and our only regret was that it came so soon to a close."

THE EXCELSIOR.

One of the first Motor-Bicycles placed on the English market is described in this Article.

"MESSRS BAYLISS, THOMAS AND CO, of Coventry, are one of the oldest firms in the cycle trade of this country, but the extent of their experience, contrary to the usual run of things, has not caused them to adopt and remain in one groove, or to oppose any new method or novel form of locomotion. They were probably the first in this country to recognise the merits of the Minerva system of constructing a motor-bicycle, and to put that system into effect. The Excelsior motor-bicycle was placed on the market early last year, and the experience gained has been turned to good account. The frame of the bicycle has received special attention. Stout-gauge tubes are. used throughout, with strong lugs of ample length and suitable liners. The Hyde free-wheel clutch is fitted, and two brakes are provided ; one a pull-up rim brake, acting on the front wheel, and a Bowden brake acting on the rear wheel. A large, roomy saddle is supplied, whilst the design and general arrangement of the whole machine are such as conduce to every comfort. The need for the absorption of vibration arising from road shocks has received considerable attention, and on the present patterns a spring head is being fitted. The wheels are substantial, and on to the spokes of the rear wheel is clamped the rim for the driving belt. The front forks and fork crown seem to be amply strong for the work they have to do. The machine is efficiently protected by mudguards. The motor occupies the well-known Minerva position, attached below the down tube, the weight being low and the cylinder being fully exposed to the rush of cooling air—a point which is being overlooked by some makers, who have adopted more sheltered positions. The nominal horse-power is 1½, and is usually sufficient to carry machine and rider up most ordinary gradients with-out the latter being called upon to pedal; but ever so little help from the rider is an advantage, as the motor is able to maintain its speed and therefore its efficiency. Moreover, it does not overheat. The carburetter case is so arranged as to form (1) the carburetter; (2) the petrol tank, and to provide storage room for the accumulator, the induction coil and the oil reservoir. The carburetter is of the surface type and never causes trouble, the mixture being entirely under the control of the rider through the mixture tap. A throttle valve is fitted, so that on hills full gas may be given to the engine, and on favourable stretches the supply of gas can be cut down to the effective minimum, power being obtained by advancing the sparking. The exhaust box now fitted is of large capacity, and it effectually silences the exhaust without checking the expulsion of the burnt gases. The necessary taps and levers are

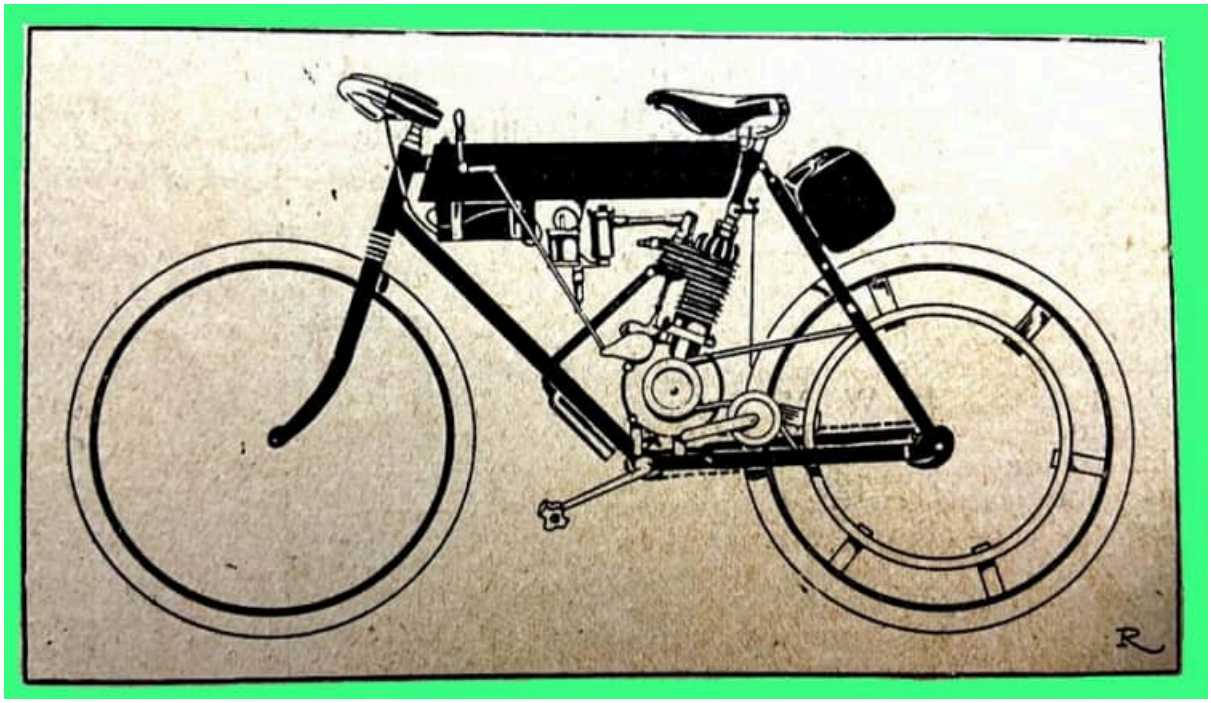
conveniently placed, the current being switched on and oī by the act of twisting the left handle grip. The gas lever and speed lever, the only two that are required for actual driving, being controlled by the right hand. The mixture lever and compression tap lever are on the left. In the later patterns the compression tap is dispensed with, a plug taking its place; this only needs to be undone when the cylinder requires its occasional washing with paraīin. Instead of the compression tap, the much more convenient and useful exhaust valve lifter is □ðtted, a contrivance which is greatly appreciated when driving the motorcycle through traīic. It has this advantage, that when the exhaust valve is lifted the suction of the piston is too small to open the inlet valve, so that petrol is economised. Lubrication of the engine is eīected from, the oil reservoir means of a small hand-pump attached below the saddle. The plunger rod being lifted, the barrel of the pump □ðlls with air. Then the valve between the pump and the reservoir being opened, the air is forced into the reservoir, whence oil is driven out by air pressure and so □ðlls the pump barrel. When the plunger has risen to the top the three-way tap is turned over, thus closing the valve from the reservoir and opening the one into the crank chamber of the engine, into which the oil may now be expelled. This operation, performed once every 20 or 25 miles, provides perfect lubrication, provided the best quality oil be used. Ignition is eīected by electrical currents, the primary current being obtained from a pair of accumulators which register 4.4 volts. The coil is of a modern type, by which the system is greatly simpli□ðed. The one high-tension wire passes from the coil through the metal case and goes direct to the sparking-plug, so that the wire which is most liable to short circuit can be quickly run over in case a defect is suspected. Belt transmission is utilised, and the method of taking up any slackness is simplicity itself. The belt is unhooked at the joint and is twisted one or two turns and again hooked up, the operation not taking a minute. Messrs Bayliss, Thomas and Co are this year marketing a higher powered machine, which is shown, with Mr. Martin, in the accompanying illustration. The motor is placed in the low position favoured by this □ðrm, the frame of the bicycle being, lengthened and raised in order to provide the necessary space for the larger motor. The motor nominally develops 2¾hp and is air-cooled. Large valves and suīiciently wide hearings are provided, and generally the machine has proved of very high eīiciency. For racing purpose, for hilly districts, and for those who require to attain more speed than the 1½hp vehicle permits, this pattern will prove very acceptable, especially as the increase in cost is not very great. The steadiness in running of the 2¾hp was noticeable in the races held at various tracks, but for general work the 1½hp is found to give ample power."



"The standard Excelsior 1½ horse-power." (Right)"H Martin and the 2¾hp Excelsior, upon which has has accomplished so many excellent performances lately."

SOME INTERESTING FEATURES OF AMERICAN MOTOR-BICYCLE DESIGN.

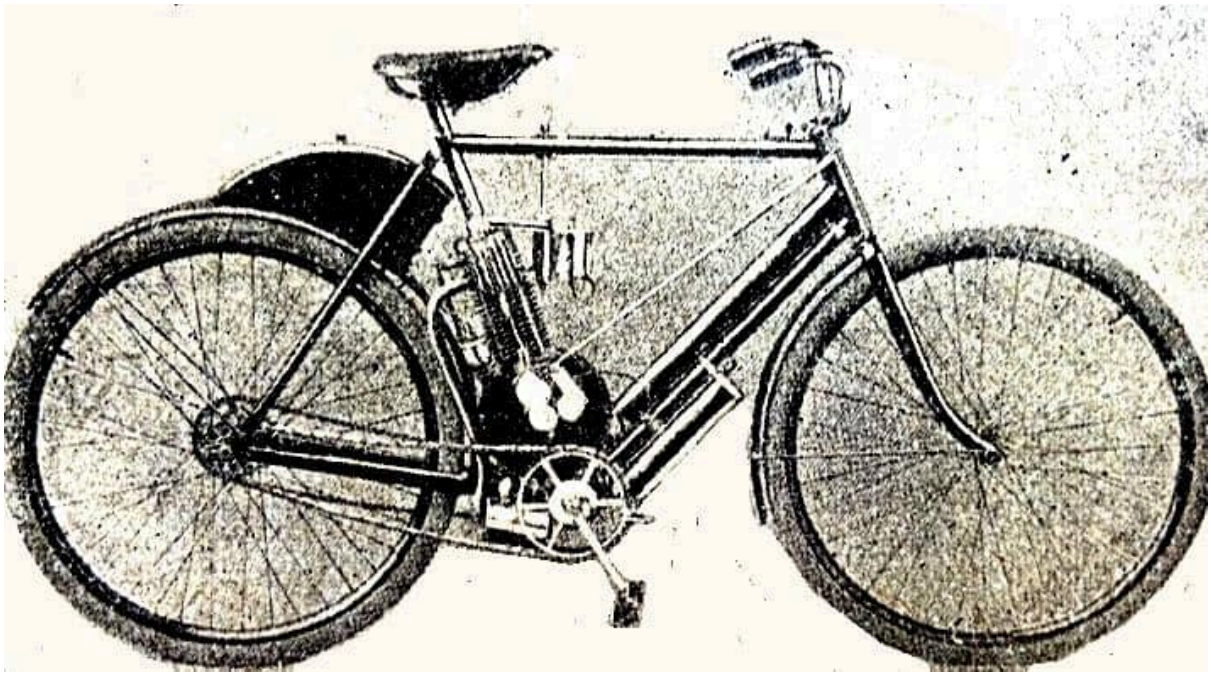
"OVERIN THESTATESthemotor-bicycle has undoubtedly 'caught on', and there would appear to be something of a boom in them just now. Themaking of these small motors and their accessories is just that class of light mechanical work that oīers a wide □ðeldfortheapplication of that inventiveness and ready resource for which the American engineer is so famed. Most of the American motor-bicycles are possessed of a striking individuality; each maker seems to have struck out on a line of his own in design and equipment; there is no following a set pattern such as we are familiar with here. Like their bicycles, the motorcycle of the States is full of novel points, and, although we might reasonably question the utility of some of them, still it is very instructive and interesting to study a few of these features. Theperfecting of the motor-bicycle will prove to be now mainly a question of detail, so that anything likely to possess merit is worthy of consideration as assisting towards the attainment of the perfect machine—if such a thing be possible. The **Orient** is put on the, market by the Waltham Manufacturing Co, Mass., and they were one of the □ðrst□ðrmsinthecountryto take up the motor-bicycle. It is probably the largest and most powerful machine in use, consequently it does not claim to be a light machine. Its appearance also is somewhat bulky. Theframe is of special design, and the motor—. which is 2¼hp—ismounted in the forward part of the frame in a slightly inclined position. It drives, by a belt, and the special tightening gear should be observed. The petrol tank is □ðxedovertherear wheel, and the coil and battery are carried in a case supported from the top tube. Thespray carburetter will be found just over the bottom bracket…MarshBros, of Brocton, Mass, build the **Marsh**, a machine of light weight and taking appearance. Themotor will give



Marsh: "a machine of light weight and taking appearance".

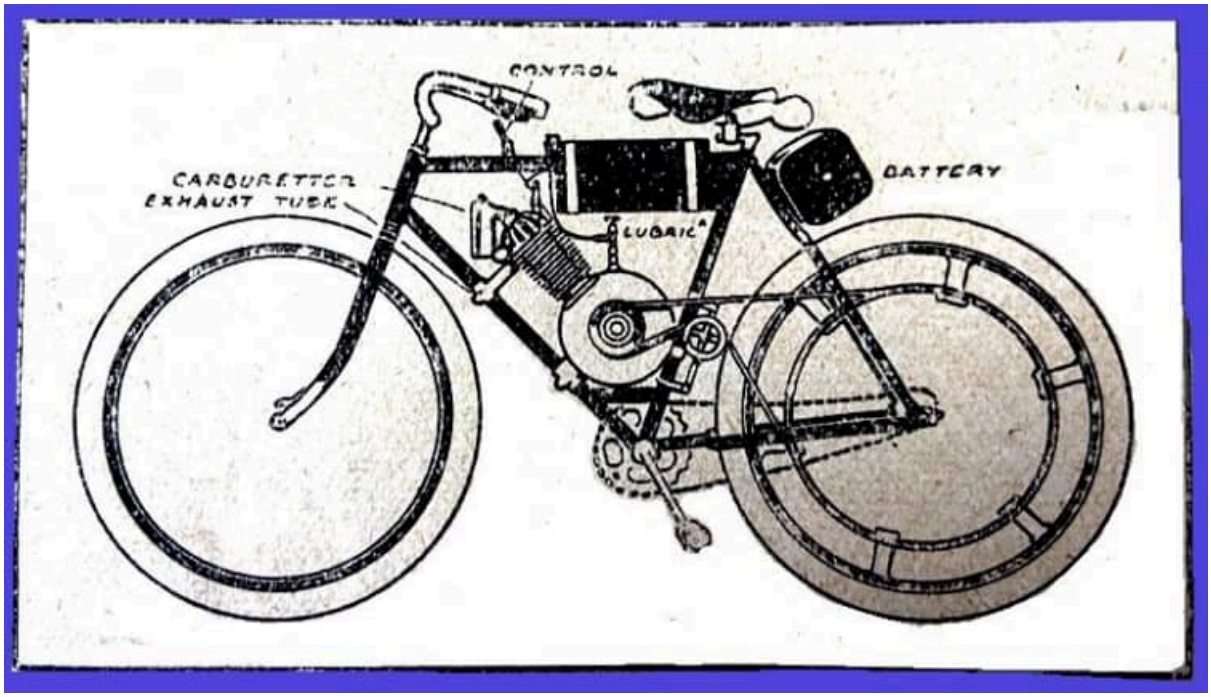
1¾hp and the total weight comes out at 90lb. It will be noticed that the motor forms an integral part of the frame, forming as it were the diagonal tube. A spray carburetter is □ðtted,andthe

petrol tank, of very compact design, is □ðttedalongthetop tube. Theinlet and exhaust valves are placed on the front of the cylinder, to reduce the width and also to obtain the maximum cooling eīect…A rather bulky-looking case containing dry batteries on the rear stays supplies the sparking current. Driving is by means of a leather belt, tightened with a jockey pulley, and it will be noticed that the fork crown of the machine is a specially strong one. "The **Indian** is manufactured by the Hendee Manufacturing Co, of Spring□ðeld,Mass.Themotoris built into the frame between the saddle pillar and bracket, and can be readily detached if



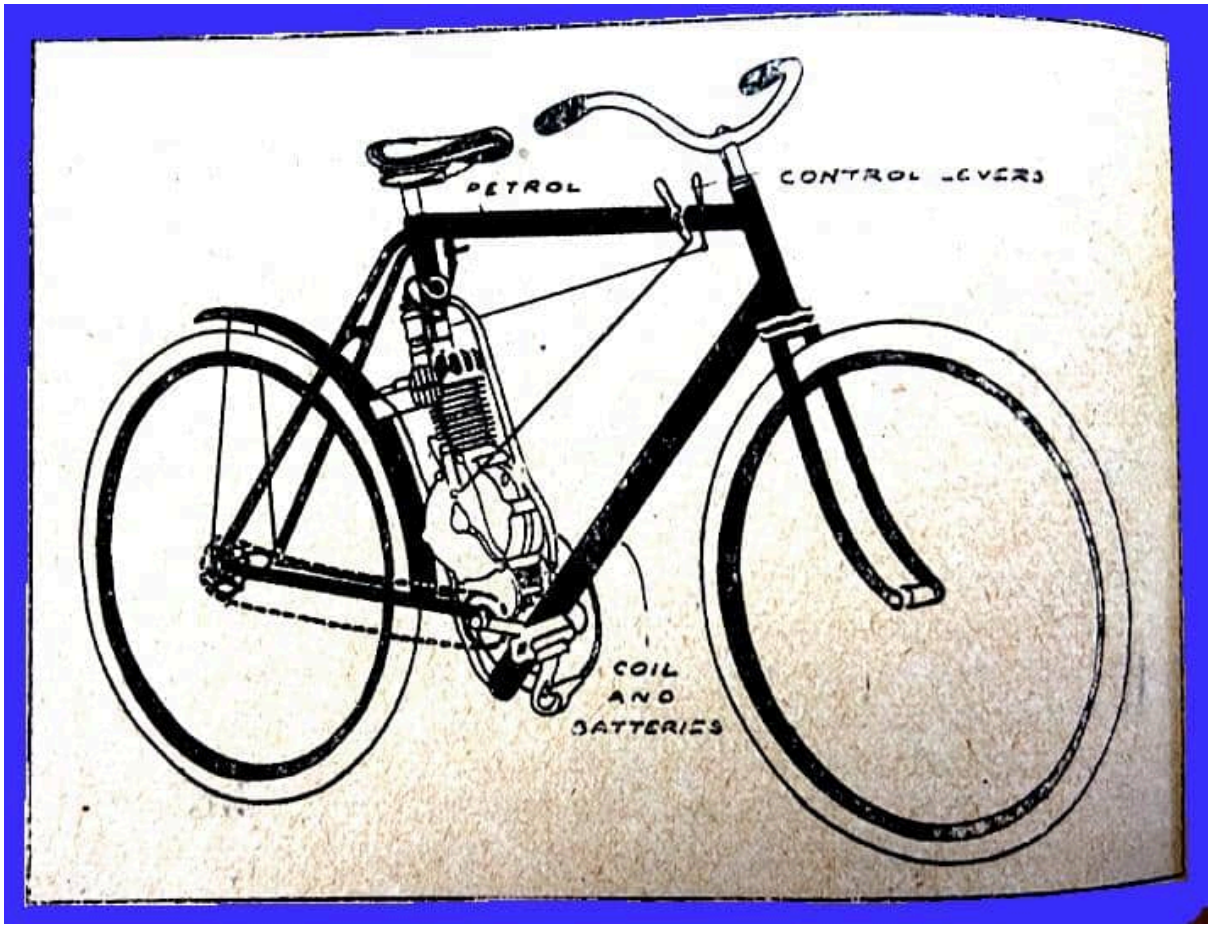
It's easy to see why this □ðrst-generationIndianis known as the Camelback.

necessary. Thedrive is a chain one, the motor pinion driving to a countershaft at the crank bracket, and after this reduction directly on to the rear wheel. Thepetrol tank seen just overthe rear wheel supplies the carburetter, which is of the spray type, and is mounted just forward of the cylinder. Thepopular method of single-lever control is adopted, this combining the switch, spark timer and exhaust valve opener. Thereis also a throttle valve □ðtted,butthis is not used except when climbing hills of 12 or 15% grade. A sight-feed lubricator, holding enough for 40 miles, will be observed □ðttedintothe crank chamber. This is supplied from a small tank □ðtted under the rear stays. Dry batteries, □ðttedintoacircular case, supply current to the coil for the electric ignition. Theweight complete comes out at 92 pounds, and it is claimed that steep hills can be ridden at a speed of i8 mph. Visitors to the last StanleyShowwill remember this pattern on exhibition there. The**Merkel** Manufacturing Co, of Milwaukee, has designed a motor-bicycle mainly as a machine for everydayuse, and not as a racing machine. It possessessome rather interesting features in its design. Theposition



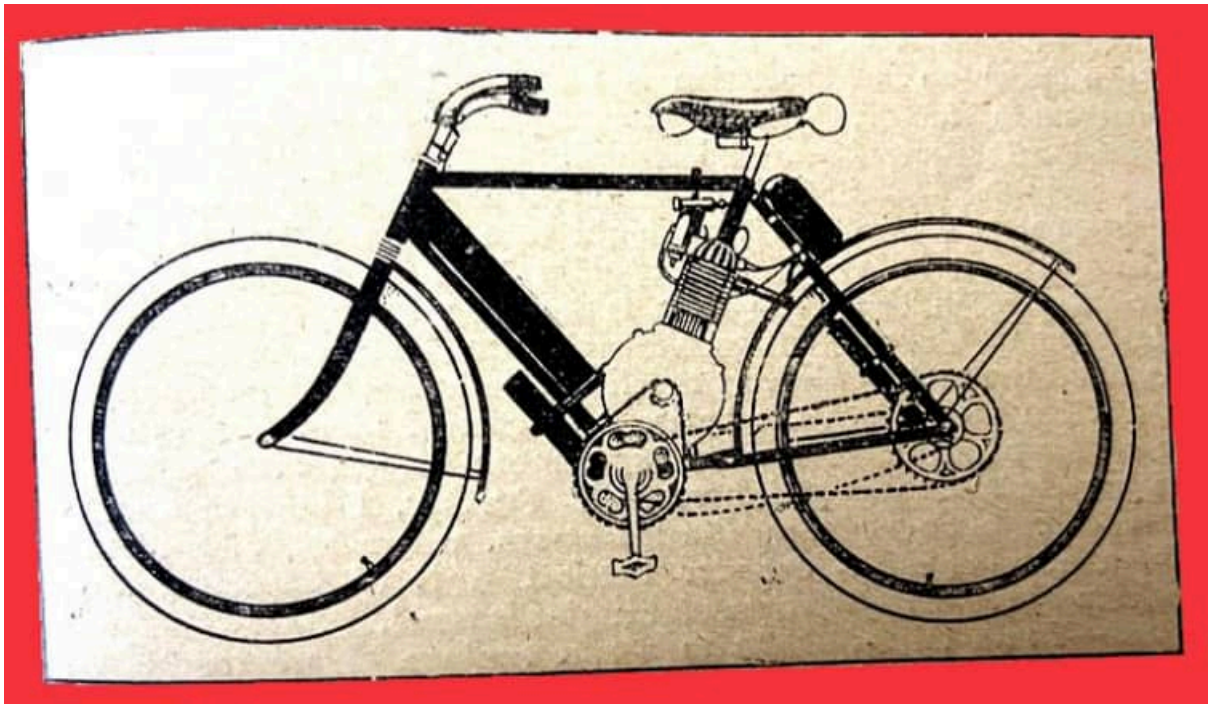
The Merkel—"a machine for everyday use".

of the motor is not a common one adopted in American practice. It is strongly clamped in three places between the main tube and the seat pillar, and there is also a strengthening strut just above the bottom bracket. The motor cylinder has a special form of radiator □ðtted, giving a large cooling surface, there being 267 square inches of radiating surface on the cylinder alone…the dimensions of the cylinder are 2⅝x2⅝…ample power for general road riding is developed. In the □ðtting up of the crank case—which is of aluminium—all the bolts pass inside thus, thus giving a neat and smooth appearance to the exterior. A drip-feed lubricator is □ðtted into the crank case, and this is supplied from the tank above. A carburetter of the spray pattern is employed, and this is fed from a supply tank supported from the top tube of the frame. The ignition batteries are carried in a case □ðxed to the rear stays. The exhaust box, or muīler employed, is of a unique form: The exhaust passes through a cast neck, which also serves as a clamp, thence it passes into the lower main tube, through a series of quarter-inch holes. It then passes through a cross tube into the diagonal, and is □ðnally expelled through a series of small tubes in the rear of the upper portion of the seat mast. The drive is by means of a twisted-hide belt, a jockey pulley being provided for tensioning. In the building of the frame special attention has been paid to the strength of the fork crown. A single-lever control is □ðtted, and the total weight of the machine comes out at 90 pounds.



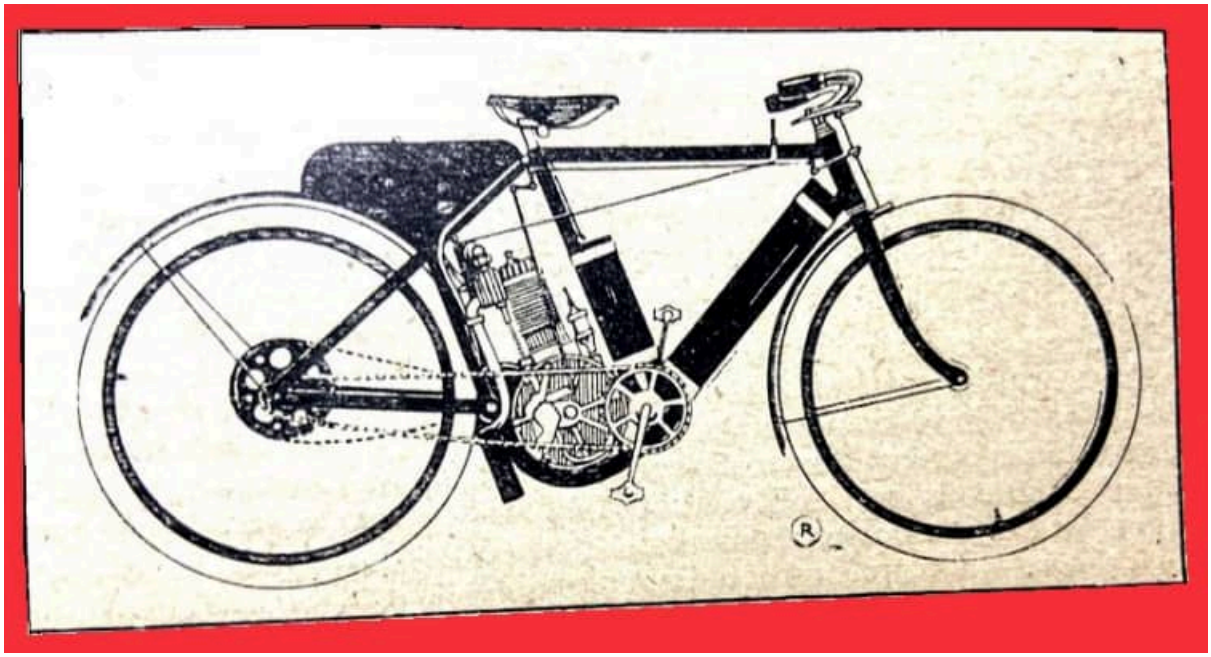
The De Long weighed in at just 60lb.

The Industrial Machine Co, of Phoenix NY, turn out the **De Long**, which is probably the lightest and neatest motor-bicycle extant. It only weighing 60lb and carries suīicient petrol to run. The tank is ingeniously contrived to serve as the top tube of the frame, and the lower main tube carries the battery and spark coil. Lubricating oil is contained in the short tube between the motor head and seat pillar lug. The motor itself forms the lower portion of the seat mast, and it is very rigidly mounted in the frame. The drive is by means of a single chain, this serving also for the pedal starting. Amongst other features, a single lever control is □ðtted, and the tread comes out very narrow, only 5¼in. The carburetter is of the spray form and, it will be noticed, is □ðxed on top of the motor cylinder. The ignition is by means of the usual coil and dry cells although so light in weight that the motor has ample power for ordinary road riding and hill climbing. One of the most enterprising makers in the States is the Buīalo Automobile and **Auto-Bi** Co, which will be better known



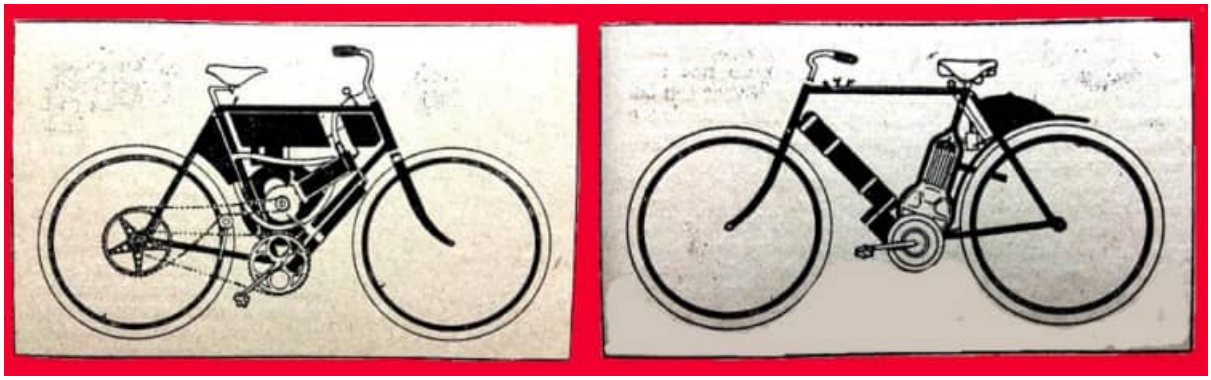
“Auto-Bi chain drive—the switch controls all the work.”

under their old name of the ER Thomas Co. They have made some fresh departures this season from their old model, in which the engine was placed at the back of the head and parallel with the lower frame. In the new type the engine takes the place of a down tube, and is therefore a real motor-bicycle, and not a bicycle with a motor □ðttedtoit. The petrol tank is now carried on the lower tube, and the top tube is used for carrying the lubricating oil, which is pumped into the crank case. The other model is chain driven on the left side, and this pattern we illustrate. The engine is of 2½hp with large diameter and thin drop forged □ðywheel. The company have simpli□ðed the one lever attachment. In fact, a switch on the right handle starts and stops the motor, advances and retards the spark, and lifts the compression valve. All unsightly wires, levers, and switches have been done away with. A new silencer is □ðtted, which is so constructed that a turn of the lever turns the exhaust into the open air instead of into the silencer. It is claimed that this gives more power for hill climbing. The American Cycle Manufacturing Co (**American Bicycle Co**) have placed a new motor-bicycle on the market, and it will be noticed that the engine is placed well back behind the down tube. This engine is of 2¼hp, the cylinder being 2¾in by 3in stroke. Transmission is by chain to a large chain wheel on the left hand side. The popular ‘carrier’ style of petrol tank is carried over the back wheel, battery and coil rest on the down tube, and lubricating oil on



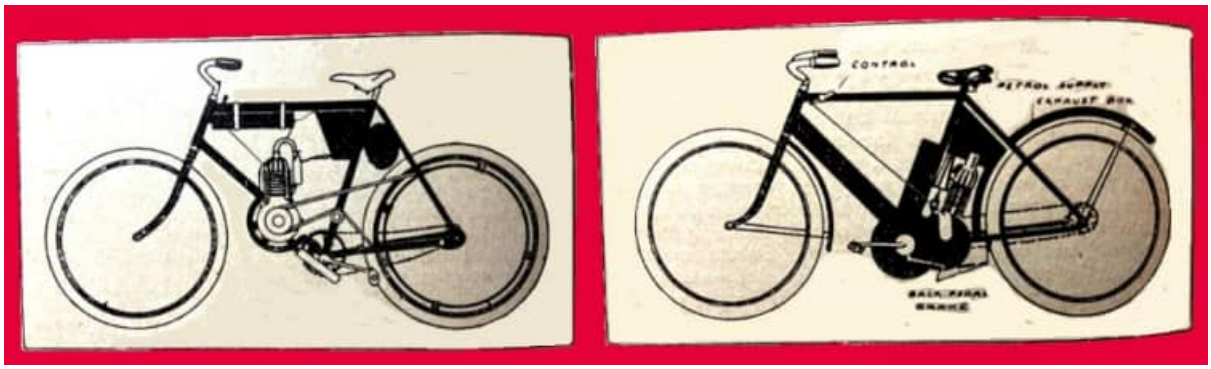
"American Cycle Manufacturing Co's new model—control is by a single lever."

the saddle pillar tube. Control is by a single lever, which allows control of a machine without removing the hands from the handles. In starting, a method has been devised to allow the power to be gradual so as to prevent excessive jerking and the breakage of chain. The petrol tank carries suïicient for 100 miles. The Wheel base is 53in, frame 22in, and weight 115lb. The **Steïey** is one of the very few motor-bicycles □ðttedwithwater-cooling. The power of the motor is 1½hp, and it is specially designed with a one-piece crank and shaft, and large-diameter outside □ðywheel. The position of the motor is inside the frame and inclined over the main tube. Chain driving is employed direct on to a large sprocket mounted on the rear wheel axle. For tensioning purposes, a small idle pulley is provided. This is carried by a bracket □ðxedtotherear stays. The petrol tank will be observed carried below the horizontal tube, and between the diagonal and back forks the water tank is □ðxed. The ignitioniselectric, on the coil system. Control is eïected by the advance spark lever and gas throttle. A silencer of eïective dimensions is □ðttedjustbelowthe main tube. This machine is made by the Steïey Manufacturing Co, 2,722, Brown Street, Philadelphia. The **Royal** Motorcycle is manufactured by the Royal Motor Works, Spalding-Bidwell Building, New York. It is designed on very neat and symmetrical lines, and has some special features worthy of note. Amongst these might be mentioned the build of the frame. The seat post is divided above the cylinder and joined again at the bottom bracket. The motor, of 1½hp, is □ðttedinthespace thus formed, and it is very rigidly clamped to the tubes. The radiators on the cylinder, it will be observed, are of a special shape, and these ensure very eïective cooling. The drive is by gearing on to the bottom bracket, and from thence by chain to the rear wheel sprocket: The carburetter is of the spray pattern, and is supplied from a tank carried by the back forks. The con-trolling



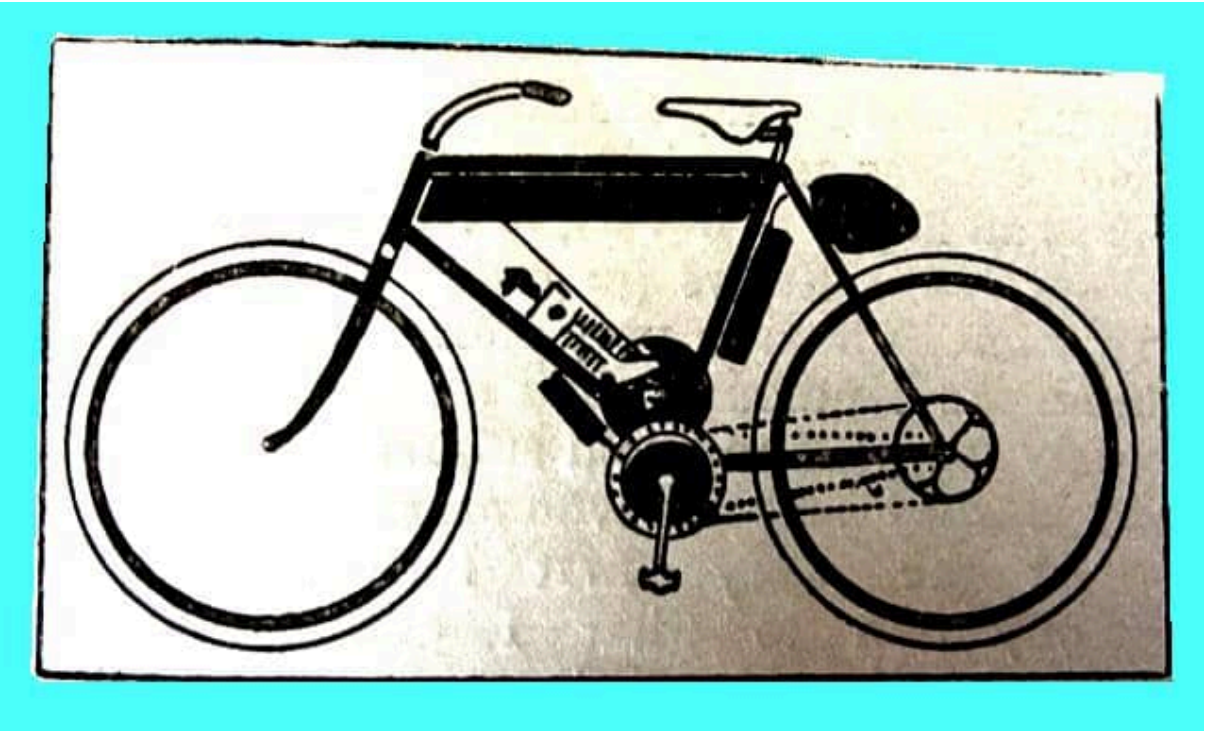
“The Steīey water-cooled pattern. (Right) The Royal.”

levers are mounted forward of the top tube and communicate by rods to the throttle and spark advance gear. The ignition coil and battery are clamped to the main tube. he **Stahl** motor-bicycle is made by the Home Motor Manufacturing Co, 2,047, Ridge Avenue, Philadelphia. Either a 1½ or 2hp motor is □ðtted. It will be observed that the motor is □ðxed in a vertical position, and clamped to a loop made in the main down tube, and the width of tread is not thereby increased. The drive is by means of a leather belt on to a pulley mounted by stout arms to the rear wheels. A tensioning pulley is provided, and this is manipulated from the saddle. The speed is controlled by a single lever, and the range is from 6-30mph. The ignition batteries are carried in the usual case behind the saddle, and the coil is carried under the top tube. A spray carburetter is □ðtted, and the petrol tank has a capacity for 100 miles. The manufacture of the **Keating** has been continued by the Eisenhuth Horseless Vehicle Co, and in the 1902 model many original features are embodied. The



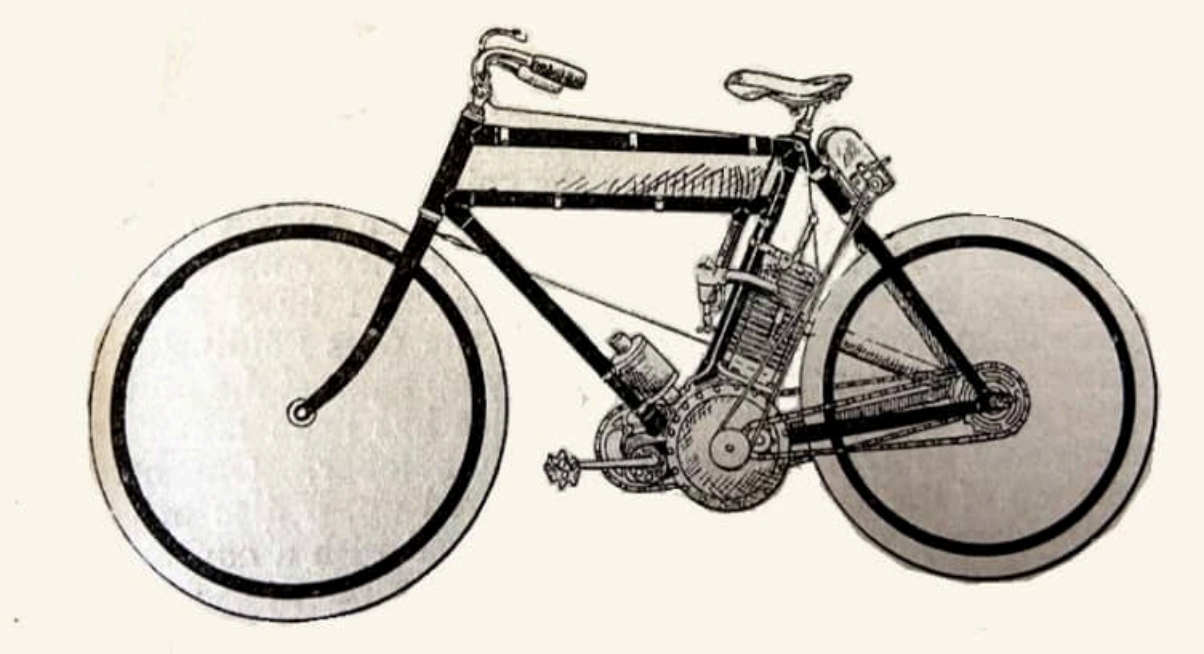
“Stahl’s motor-cycle (Right) The Keating.”

motor is mounted at the rear of the diagonal tube, and drives by chain and reduction gear to the rear wheel. A clutch for motor connection and disconnection with the chain drive is □ðtted. Instead of a □ðoat-feed carburetter, a vaporiser, which is arranged directly underneath the petrol tank, is used, and this works perfectly through a very large range of temperature. At an actual test it was run indoors at a temperature of 65°, and then run outside with the temperature e below zero, without requiring alteration in the adjustment. Another novelty is the utilisation of the rear mudguard—which is made hollow—to serve as the exhaust box. The petrol tank is □ðxed in the angle formed by the rear stays and diagonal tube, and an extra supply can be carried in a tank □ðxed over the rear guard. Single lever control is adopted, and when the lever is pulled right forward the power is shut oī, and the machine is set ready to start. The **Clemens** is a chain-driven machine



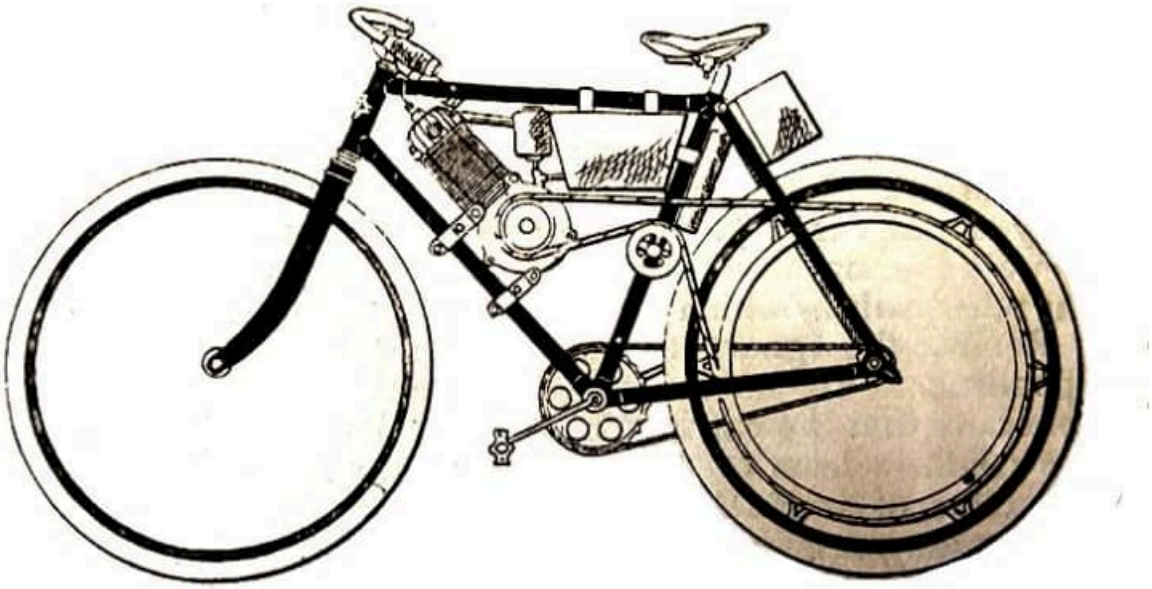
Clemens riders could keep their hands on the bars.

built by Chester E Clemens, of Springfield, Mass. It is of about 1½hp, and is powerful enough to climb a 19% grade without pedalling with the ordinary gear—9 to 1. The crank case of the motor is permanently built into and forms a part of the frame, thus ensuring rigidity and perfect alignment of the chain sprockets. The cylinder and combustion chamber are cast in one piece, and extra large cooling surface is provided. The silencer is provided with a cut-off for exhausting straight into the air, to obtain more power in hill-climbing, etc. A special feature of this machine is the arrangement of all the control in the handle. The left grip, when turned slightly forward, opens the exhaust and puts on the current; turning the grip still-further advances the spark. The right grip controls the throttle valve, thus altering the speed without changing position of the spark advance. The ignition is provided by a coil and four dry batteries—these being carried in a leather case behind the back stays. The petrol tank carries sufficient for 75 miles. The **Freyer and Miller** was shown for



The Freyer and Miller engine was what we now call a stressed member.

the □ðrsttimeatthe recent Chicago Autocar Exhibition, and there are some rather novel features in the construction. Thedrive is by chain on to the rear hub, which is provided with a friction clutch providing for a certain amount of slip in starting. Themotor is mounted behind the diagonal and the crank case is built into the frame and there is also a reducing gear in the crank case so that only one chain is required. Thepetrol tank is mounted between the two top tubes of the frame and a spray carburetter is □ðttedjustforward of the diagonal. Thedistinguishing feature of the machine, however, is the ignition gear, which consists of a small magneto dynamo mounted on the back forks. This is driven by a small band from the motor pulley. This gear is remarkably eīicient. Control is eīected by two levers mounted on the handlebar; one advances the spark and the other opens the throttle valve. Thesilencer is of good size and is clamped to the main down tube. The **Morgan**, made by the Morgan Motor Co, 54, Columbia Heights, Brooklyn, is manufactured on familiar lines. Themotor is clamped on to the main tube in an inclined position, and drives on to the rear wheel by means of a twisted rawhide belt, a jockey pulley being provided for tensioning. Thebattery is carried on the rear stays and the coil is clipped to the diagonal. Thepetrol tank is carried from the top tube and supplies a spray carburetter. "



The Morgan's inclined engine was common practice in the States.

"PROBABLY THE FIRST MOTORCYCLE club in America has been named, appropriately enough, the Alpha. The club has adopted as its uniform a leather cap and coat, with leather leggings for lengthy spins. The club monogram and membership number will be on the left and right sleeve respectively, and the colours are cavalry yellow. Weekly and special runs are carried out, and the club have entered for the endurance run from Boston to New York on July 4th and 5th."

"AT A MEETING HELD at the Albion Hotel, Lincoln, last Wednesday, it was decided to form a motorcycle club, under the title of 'The Lincolnshire Motorcycle Club', the headquarters to be at the Albion Hotel, Lincoln. The subscription has been □ðxed at 10s 6d. A further meeting to draft rules, etc, will be held on Friday of this week. The hon sec pro tem is Mr F H Sharman. We think that a move in the right direction has been made in forming such a club, especially for motorcyclists, as motorcycles and cars do not go very well together. The club, energetically pushed, should have an excellent future, and we wish it every success."

"THE BAD WEATHER with which, unfortunately, we were favoured at the weekend, did not tend to improve the attendance at the initial run of the Motor Cycle Club to Brighton on Saturday, but there was a fair muster of members and others at Purley Corner, and the arrangements were carried out without a hitch. There were a few cars on the road, and quite a number of notable faces were to be seen at Brighton on the Sunday."

THE AUTOMOBILE CLUB'S SHOW AT THE AGRICULTURAL HALL.

THE FINEST MOTOR SHOW EVER HELD IN BRITAIN.

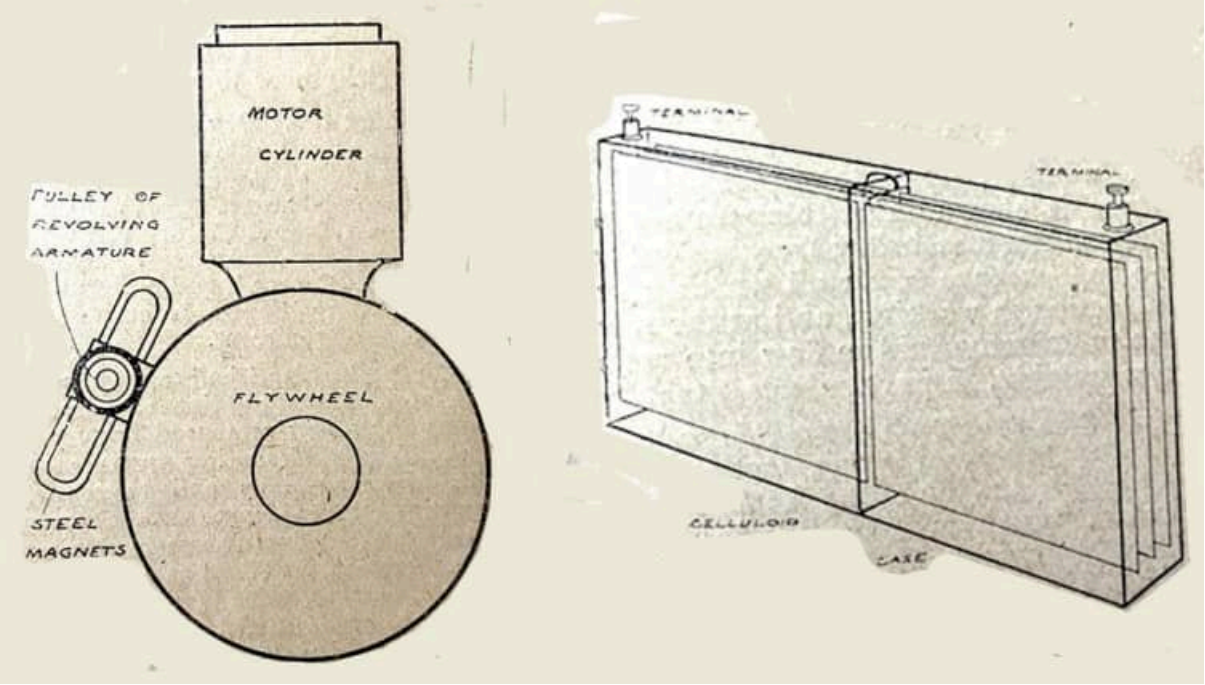
MOTORCYCLES WELL REPRESENTED.

“THE AUTOMOBILECLUB’SEXHIBITION,nowbeingheld for the last time at the Agricultural Hall, is, without the slightest question the □ðnestshowofmotor vehicles ever held in this country, and although there are a few absentees—regrettable ones in some instances—yet it will be readily conceded that the show is thoroughly representative of the industry. Everypossible class of vehicle, from the heavy steam wagon or motor mail van to the poor man’s motor—the motor cycle—is represented…Ofcycles there is not a very extensive show, owing to the clause in the agreementwith the Agricultural Hall proprietors, limiting the number of cycles which may be shown to twenty-four. With the removal of the exhibition to the Crystal Palace, this stipulation not obtain after this year. But the twenty-four machines which are shown are of great interest, whilst the show of accessories, clothing, and other sundries, is of great amplitude. It is in this branch that most proof is given of the vast amount of thought and attention that is being paid to the new industry. Almost every conceivable convenience is provided for those indulging in the pastime of motoring…Thebicycles on view are few in number, but are fairly representative, aïording an interesting survey of the subject. The best displays are those made by Singers, Humbers, and Bayliss Thomas and Co, whilst other prominent machines shown are the FN, Regina, Aurora, Al1days, Kitto, Dennis, Swift, and Hewetson. In motors, pure and simple, there is a very complete display

“The Singermotor tandem tricycle (rear part detachable).” (Right)“The Ilford Motorcar and Cycle Co’s motorcycle.”

of all sizes and powers. **Simms Manufacturing Co** show a □ðneselectionof bicycle motors, and their speciality, magneto ignition; valve lifter and advance sparking mechanism are also special features. Thetotal weight of the motor and magneto is 36lb. All the nuts to the axle, etc, are locked by a special arrangement, and an improvement recently adopted is the. employment of □ðbreintheconstruction of the gear-wheels. Theactual power developed by the bicycle motor is 2hp on the brake.**AuroraMotor Manufacturing Co** exhibit two motor-bicycles, both □ðttedwith high-powered motors. One of the machines has the motor arrangedvertically, and the other slightly inclines in the frame. Themethod of attachment is a very rigid one. Extralarge coil and battery power is provided, and another good feature is the wide and eïicient mudguards □ðtted.**AlldaysandOnions** are showing a standard pattern motor-bicycle, □ðttedwiththe Minerva engine. Thebicycle part of the machine is thoroughly well-□ðnished.Twobrakesare □ðtted—afrontrim and Bowden rear rim brake—Clincher A1 tyres, and a good head lock is a speciality. Lycett’s ‘La Grande’ motor-cycle saddle is □ðtted.**BrownBros**showthree well-□ðnishedmotor-bicycles,one tricycle and one quad. In the bicycles the motor is □ðttedinthe large panel of the frame, and is strongly clamped to the diagonal and main tube. An eïective spray carburetter is □ðtted.Theinductioncoil is clipped behind the saddle pillar and the battery is contained in a compartment of the petrol tank, 1¾hp is claimed for the motor, the drive is by means of a twisted hide rope on to the rear wheel. Total weight 75lb. In accessories there is a

very complete variety to be seen, valves, switches, ammeters, and voltmeters', accumulators, coils with and without tremblers, springs, piston rings, lubricators and several forms of spray caburetters may be inspected. **Bayliss, Thomas and Co,** Coventry, are showing three motor-cycles, the 1½hp gent's, the 1¼hp lady's, and the 2¾hp gent's. The new devices and latest improvements are all shown, including the exhaust valve lifter and anti-vibratory head. The former is readily □ðttedtoexistingmachines from which it is absent. The lubricating pump on the standard

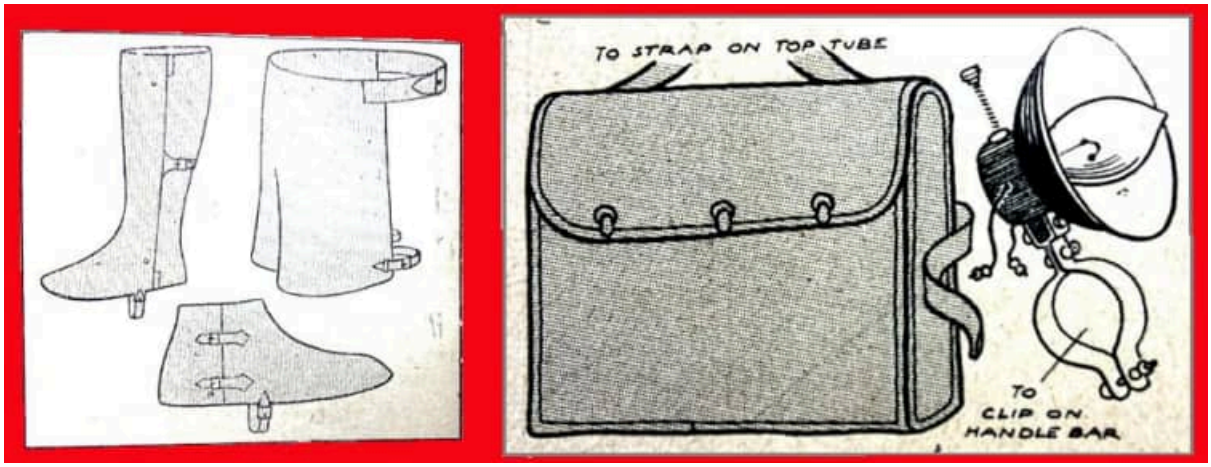


"The Lozier Motor is sold in this country by Messrs FR Leith and Co, 54, Piccadilly, London, W and we illustrate the method employed of driving the revolving armature of the magneto ignition. The pulley □ðxedtothearmature is tyred with rubber and is in contact with the □ðy-wheelsoavery rapid revolution of the armature is attained." (Right)"Mr H Waterson, of Birmingham, was showing a very narrow accumulator for use in the cases of the motorcycle in which there is very little width…theaccumulator illustrated is but one inch in width."

machines has a glass barrel, so that one can be certain that the oil reaches the engine. On the 2¾hp engine a gravity feed is □ðtted. Anewbuilt-up belt is now being used with excellent results. We are glad to learn that 'Excelsiors' are selling exceedingly well. In fact the □ðrmarepressedto the uttermost to cope with the orders. **WH Kitto,** Hartington Road, Chiswick, exhibits a particularly well-□ðnishedmotor-bicycle. The motor is □ðxedjustoverthe main tube, there is a special form of spray carburetter, and a clever arrangement of valve-lifter is also □ðtted. Thecoil is particularly good, giving an extra long spark, and has a large condenser. Thebelt-rim is aluminium, is bolted to the tyre rim, and is adjustable to all classes of rims. Clincher tyres are □ðtted, and Bowden wire brake on front wheel and back-pedal brake are also included. **The SingerCycle Co,** of Coventry, display their celebrated motorcycles, which were amongst the earliest to be made in this country. The motor and all its parts are contained in the driving wheel, which in the case of the safety is the rear wheel, and in the case of the tricycle is the front wheel. The control is practically all done by means of one lever. This, in the □ðrstplace, controls the exhaust valve, lifting it to ease the starting of the machine, then further movement of the twisting handle, which operates the device, opens the throttle valve, so increasing or decreasing, as the case may be, the supply of mixture. [Singer was clearly ahead of the pack

with a twistgrip—Ed.] Two recent additions are the mixture lever, which enables the rider to alter the mixture whilst actually riding [Singer was clearly ahead of the pack with a choke lever too—Ed.] and the lubricating pump, which can be operated from the saddle, and which, by a most ingenious method, conveys lubricating oil to the engine. The machine is □ðttedwithtwo powerful brakes. The distance which can be run by the engine is 50 miles, after which the carburetter can be replenished from the spare tank in the frame. [With a bubbler a carb-full equated to a tank-full—Ed.] A 2½hp engine can be □ðttedifrequired, the came as in use on the tandem tricycle. The lady-back tandem is an exceedinglysmart piece of work, a very comfortable very comfortable seat being provided for the rear rider. As a lady's motorcycle the Singer stands aloe, because of the perfect freedom provided fo the rider in the frame. **Alfred Dunhill,** of Eyston Road, NW, is showing a very wide assortment of clothing in leather, fur and other materials for the use of motorcar drivers and motor-cyclists. A new pair of leather breeches is now marketed in which the seat is dispensed with, so that the rider is thoroughly protected from rain, and yet does not get unconscionably hot. The combined legging and spat suggested by 'Cyclomot' has now passed through its experimental stages, and will no doubt prove of great use to motor-cyclists. A boot-top to go over shoes in cold weather, to keep the ankles warm, and a gauntlet suitable for use on a motorcycle, are among the new and useful things. Leather caps and leggings, goggles, a splendid leather dressing, and sundries of all kinds go to make up a most interesting exhibit. **JosephLucas**, Limited, Birmingham, have gone most thoroughly into the question of supplying the needs of motor-cyclists and motorcar drivers, and, moreover, not only the usefulness, but the quality and eīiciency of every article has been carefully studied before it has been placed on the market. Lubricating oils form one of the chief lines, whilst lamps, horns, pumps, and other accessories are to be had at prices and in style that suit all pockets and tastes. **The Ilford Motor Car & Cycle Co,** High Road, Ilford, are showing the Regina motor-bicycle, which has an improved frame designed to carry its engine in a vertical position, and one in which great strength and rigidity are secured. The engine is clamped to two vertical tubes, one extending to below the bracket, which, in itself, is amply strong and of extra width. The engine develops 1¾hp, and power is transmitted by means of a wide, □ðatbelt. Spray carburation is adopted: an exhaust valve lifter, which serves as a contact severer, is also □ðtted. The belt can be adjusted from the rear fork ends as a chain is now adjusted: but to provide for this on the Regina, the chain runs over a jockey pulley which can be adjusted in a slotted bracket. The capacity of the tanks is suīicient to carry the rider 150 miles on one □ðll. **BegbieManufacturing Co** show the Aster motor in diīerent powers; the bicycle motor is 1¾hp. They also show a line of interchangeable parts. Copper radiators on the 3hp motor are a speciality. Sparking-plugs, batteries, coils, radiators, axles, etc, are also shown. **KingstonMotor and Cycle Co** exhibit a capital line of accessories, including. batteries, plugs, lamps, horns, etc. There is also to be seen at this exhibit the FN motor-bicycle, which is characterised by excellent workmanship and design. The motor possesses an outside □ðy-wheel and spray carburetter, and drives the rear wheel by means of a □ðatbelt. In addition, the Peugeot quad is to be seen. This is very neat in design and simple in its working parts. The motor is 3hp and is water-cooled. **Bowden's Patents** exhibit a quad in which the application of the Bowden wire principle to numerous movements is clearly illustrated. The Bowden motor-bicycle is also a striking feature of this exhibit. In this the Simms engine is mounted in a vertical position behind the crank bracket. The ignition is the Simms-Bosch and the drive is by chain with spring clutch on the back wheel. All the movements are actuated by Bowden wires. **Mr Arthur Brampton** will be in attendance at the Automobile Show the whole of the week. Brampton's motor chains have caught on in such a remarkable manner of late that in the near future their motor chain branch is likely to equal that bf the cycle chain. **Chas R Base,** 309, High Holborn, has made a distinct speciality of tailoring

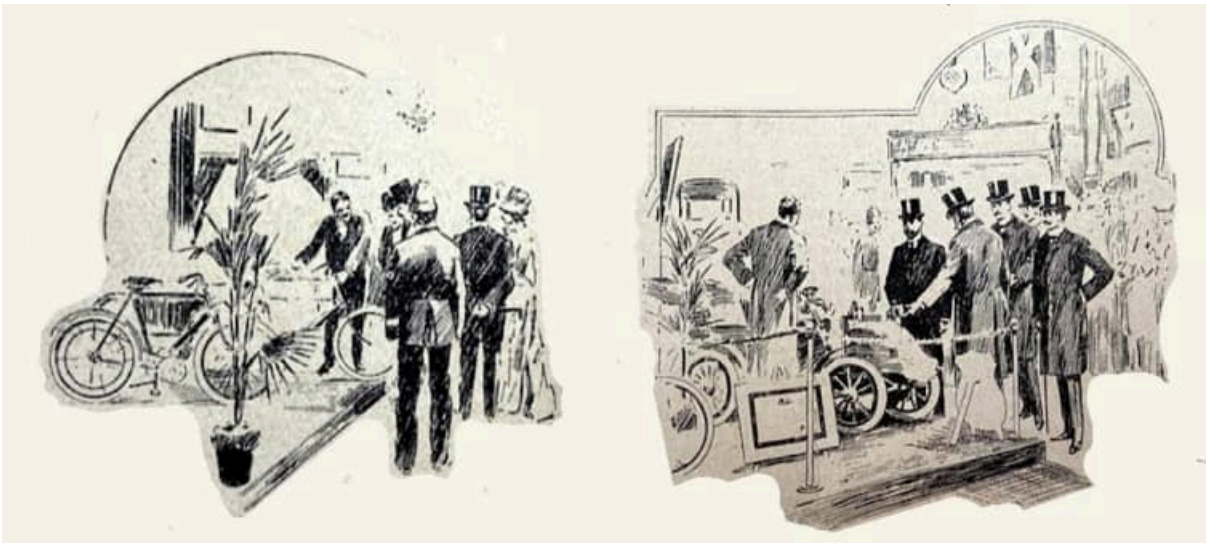
for cyclists and motorists, and he makes an interesting display of garments to suit ladies and gentlemen indulging in the twin pastimes. Fur coats and jackets are shown in various qualities, and leather is used in the manufacture of coats, waistcoats, and knickers for motor-cyclists. Particularly useful should the leather waistcoat be for those who suīer from the cold. A specially useful



"Dunhill's motorities." (Right)"The usefulness of an electric lamp requires to be experienced to be appreciated, but it will be frankly admitted that the light given is not suīiciently powerful for lane riding on a dark night. But for fair weather, for riding in town, and for use on clear summer nights the electric lamp of about four or □ðve volts capacity is all-suīicient. The'Castle' lamp illustrated is sold by United Motor Industries, and made a good impression at the show."

thing should be a chamois leather cap, which is much less conspicuous than the ordinary leather cap, whilst being equally as warm and comfortable. **The Hewetson Motor Bicycle** is □ðtted in a special frame, being □ðrmly clamped in an upright position. It develops 1¾hp, and is stated to be capable of attaining a high speed. Spray carburation is utilised, and magneto ignition avoids a number of the troubles that beset the motorist. Tank capacity is provided for about 95 miles. Transmission is eīected by a wide □ðat belt running over a jockey pulley. The machine is well and strongly built. It is sold by Hewetsons of Tottenham Court Road, W. **The Goodyear Tyre & Rubber Co** make an eīective display of their single and double tube tyres for motor-cars and cycles. The principle on which the tyre is made is that in each of the beaded edges a plaited wire strip is inserted. On in□ðation the width of the plaiting increases, and the circumferential length decreases. Thus the tyre grips the rim, and is irremovable whilst under in□ðation. The cycle tyre is made in three thicknesses, the A being a racing, B is ordinary roadster with three plies of fabric, and C is the puncture-proof, with □ðve plies of fabric. This tyre, although by no means slow, has never been known to puncture. Tyres of this make are being □ðtted to a number of well-known makes of motorcycles and voiturettes, and are giving satisfaction in every quarter. The **Souverain** motor-bicycle has the motor itself hinged at the bracket, and by means of a lever it can he rocked over, so that the rubber wheel on the shaft comes into contact with the road wheel, which is thereby driven. The **Liquid Air Co** showed a light car, somewhat on the lines of the Locomobile driven by liquid air, contained in copper cylinders; suīicient can be stored to run the car 40 miles at 12 miles per hour. Many interesting experiments were shown, illustrating the wonderful properties of this new form of energy. One, in particular, is the production of snow by simply pouring the liquid air out into the atmosphere. Small models are also shown being driven by it. The **Regina** motor-bicycle is made by the Ilford Motorcar and Cycle Co of High Road, Ilford. The engine is placed vertically. It develops 1¾hp and drives through a □ðat belt 1¼in wide. The frame of the bicycle features two short vertical tubes serving

for the crank case of the motor to be bolted to. The capacity of the petrol and oil tanks is suïicient for 150 miles. The machine is splendidly □ðnished and sells at £45. **AW Gamage,** Holborn, are showing a full range of Motor Cycle accessories for Minerva and Werner bicycles, the De Dion and Aster engines, together with all parts necessary for replacements, &c. A good pair of gogglessuitable for use on motor cycles, lamps, horns, pumps, wallets and every conceivable sundry that the motor cyclist is likely to ask for can be obtained at Gamages. Clothing in all materials, wool, leather and fur, is shown, so it may be said that the Holborn out□ðtter has gone as thoroughly into the requirements of the motorist as he has done for those of the cyclist.



"Explaining the motorcycle." (Right)"The Prince of Wales makes a tour of inspection."

"SIR,—ALLOW ME TO GIVE a hint to those riders who use spray carburetters on motor–cycles. The dusty season will soon be with us, and it is necessary that dust should be excluded, as it has a tendency to gum up the holes and prevent eïective working. Cover up the wire gauze (air screen) with □ðne muslin, and the two screens working conjointly will prove an admirable □ðlter. The same remedy can he applied to the air lever on Minerva engines.
Speedwell."

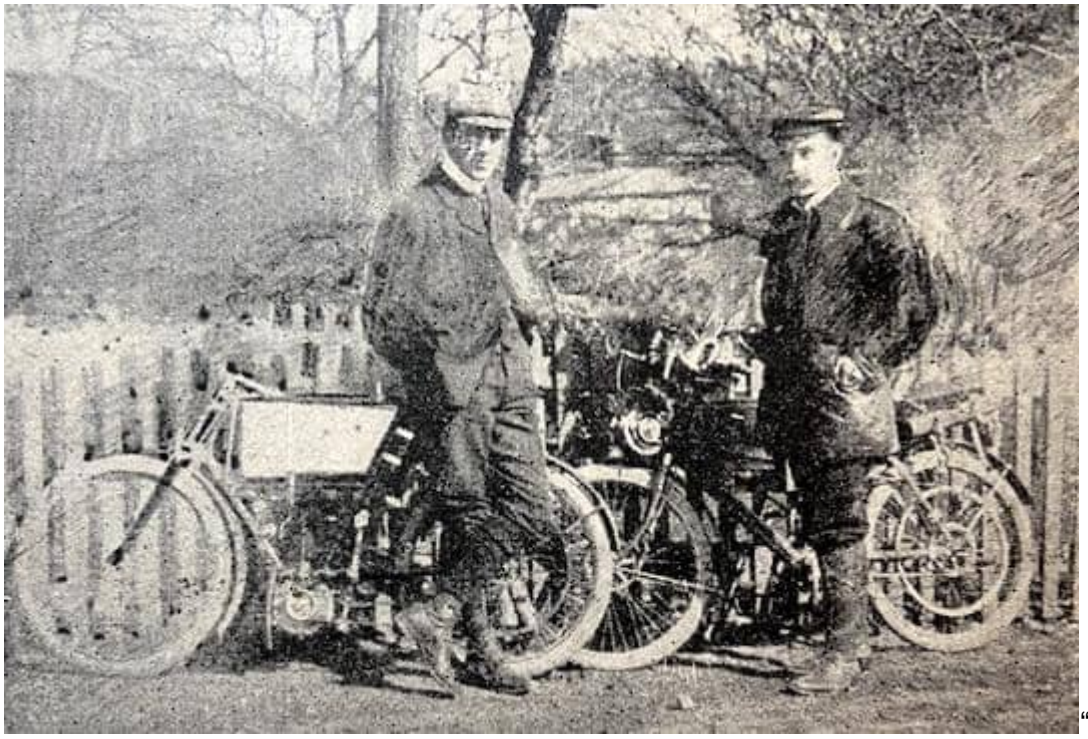
"SIR,—IN REGARD TO YOUR reference to my using a surface carburetter in motor-tricycles or bicycles which I have ridden. The reason that I generally used a surface carburetter for racing purposes was, that the engine gave a little more power with it, and that it started easier, which was rather an important point an the old racing tricycle days, but I think for general road use the spray carburetter is to be preferred as it is more economical with petrol, besides using up every drop that one has, and not leaving any residue of almost useless petrol like the surface carburetter sometimes does.
SF Edge."

"SIR,—IT MAY INTEREST SOME of your readers to know that a few days ago, when driving my quad through Theobalds Park, Waltham Cross, I was stopped by an excited oïicial farm hand and told that by her ladyship's orders, 'them motor things is not allowed through the Park'. Possibly it may escape the notice of others, as it did mine, that there is a notice board at the entrance gates with this restriction displayed thereon.
H George Morris."

“AFTERAFEWMONTHSof motorcycling it is very strange to return to the ordinary bicycle again. One of ours found this out the other day when, after coasting a hill, on reaching the bottom he instinctively felt for the taps on the top tube in order to start the engine. Thesensation was, to say the least, peculiar.”

“RECENTLYWHENOUTTOURINGtogether two members of the staī remarked on the diīerence between the behaviour of their machines under the variations in the country and the climatic conditions. Themachine □ðttedwiththe ‘surface’ carburetter was always □ðrstin starting, and under normal conditions gavea good supply of vapour to the engine. Roughand bumpy roads, however, interfered considerably with the carburation and then the ‘spray’ machine forged ahead easily. On good roads there was nothing to choose, but on a cold night or over bad country the ‘spray’ seemed to be the better of the two.”

“AT PRESENTALLMOTORTOURISTSareadvised to stay away from Switzerland, since the regulations of the central and local authorities are so absurd and the □ðnessoextremelyhigh: no appeal is allowed and the motor is at once con□ðscated…theCantonsnearthe German frontier have prohibited the use of all motors and none are permitted on any public road.”



“Snapped by the way. EH Arnott and E Perman of the Motor Cycling Club returning from the opening run to Brighton.”

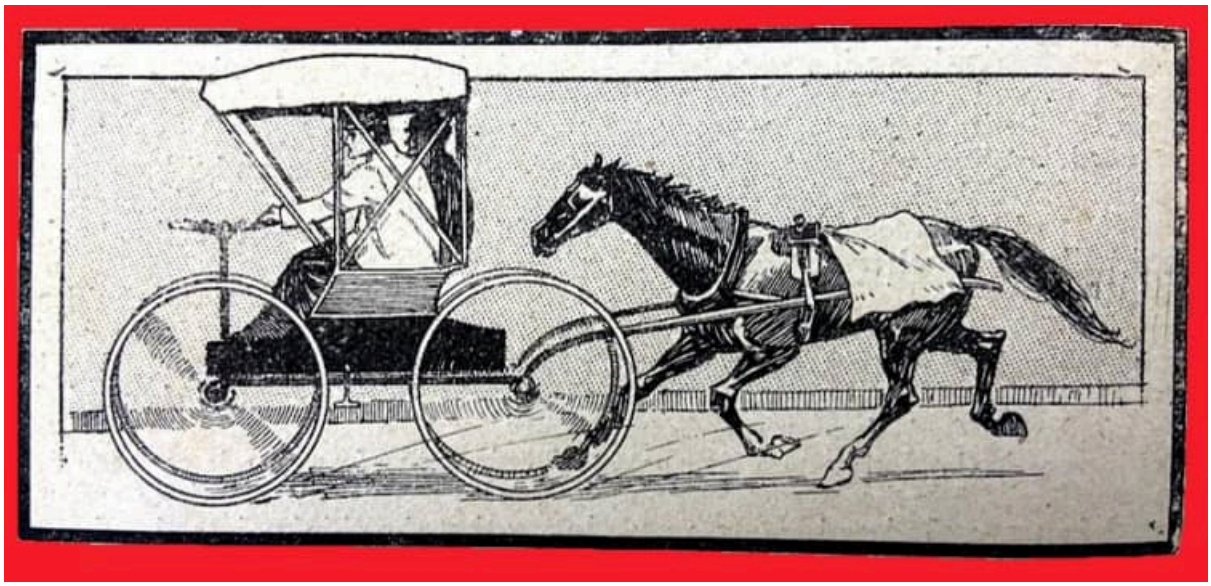
“HOW MANYAUTOMOBILECLUBSofrecognised standing, and fully organised, are now in existence? France possesses 27, of which the □ðrstwasstarted in 1895; Germany has 15; Great Britain, 10; Belgium, 8; Italy, 7; Austria, 4; Russia, 2; Switzerland, Holland and Spain, 1 each; and the United States, 36; making a total of 112. Only motor clubs with a large membership and some in□ðuencehavebeen included.”

“NUMEROUSHAVEBEENTHEcomplaints heard through the motor press from riders as to the diīiculty of obtaining duplicate parts that can be relied upon to □ðttheirvariouspositionswith accuracy. Justtake the case of trembler blades, contact screws, exhaust valves, springs, and other details likely to go wrong: if one □ðnds,thatconsiderable □ðlingordodgingis necessary

before it is possible to make a part □ðtinposition, waste of time on the road and loss of temper are inevitable. This results from the makers not insisting upon a rigid system of gaugingafter manufacture and before the parts are sent out."

"THEREAREFEWMOTOR-CYCLISTSwhohavenot at some time or other lost one or more nuts from various parts of the motor. If one considers the vibration set up by the motor itself, and quite apart from that caused by the roughness of the road, one does not wonder at it. A second nut is imperative for safety, and these must □ðtthethreadjust a shade on the tight side; the slightest back-lash or looseness in the □ðtisfatalto a good hold of the nuts. In some cases the writer notices a split pin has been used, passing through the axle. Although fairly eīective in keeping the nut on it is hardly good mechanical practice to drill a thin bolt through and weaken it thereby…Manyriders will persist in using a spanner carelessly and thus burring and taking the corners oī the nuts—in using a spanner the jaws must be screwed hard down on the □ðats before any turning pressure is applied; but there really appears no reason why the nuts should not be hardened instead of being left as mild steel as at present. Thewriter has often noticed that even on some of the cheapest and much condemned American bicycles, stock hardened nuts were □ðttedthroughout. Then, again, there is the question of square versus hexagonal nuts. Thereis no doubt but that a square-sided nut would, in many positions on the motor, be an improvement over the six-sided. Thereis better grip for the spanner and a sharper and cleaner appearance."

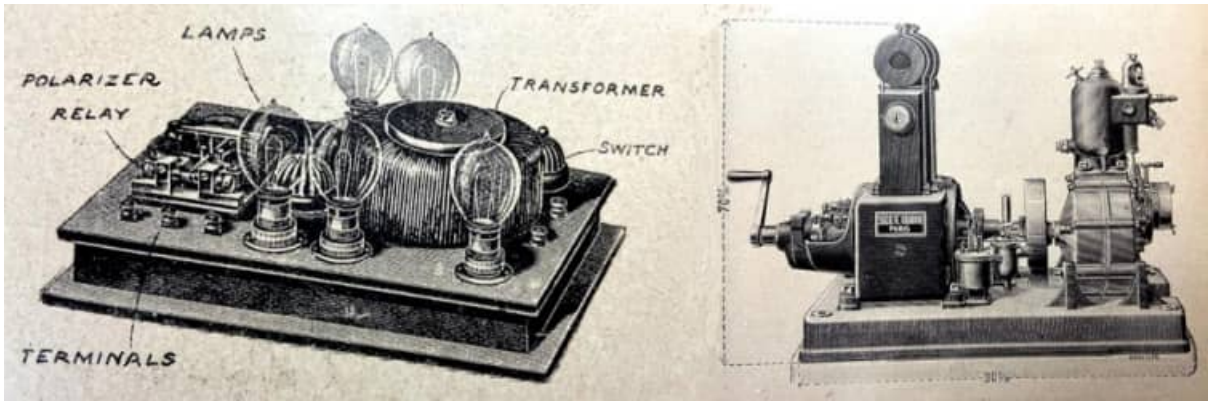
"OUR ILLUSTRATIONDEPICTSaquaintconceit practised by a Baltimore man. Apparently the horse is engagedin pushing the carriage, but really a small motor is hidden away under the seat. Thenoble animal merely ambles along, and takes periodical draughts of stale gasolene fumes. It may be noticed that the steering wheel is merely an old wheel with the rim ripped oī."



"Literally putting the car before the horse, but really a small motor is providing the motive power."

"THE BELTPROBLEMISproving a veritable thorn in the □ðeshofmanymotor-bicycle makers. In the case of the round belt drive why not abolish the use of leather and the ridiculous wire hook fastening? Use a ⅜-inch, or better, a 7⁄16-inchroundgutband and have the hardened steel hook-and-eye fastening attached to the ends in a thorough manner. Breakagewould then be well-nigh impossible. It does not appear to be generally known that a gut can be slacked or tightened by giving it a twist in the same manner as a twisted hide belt."

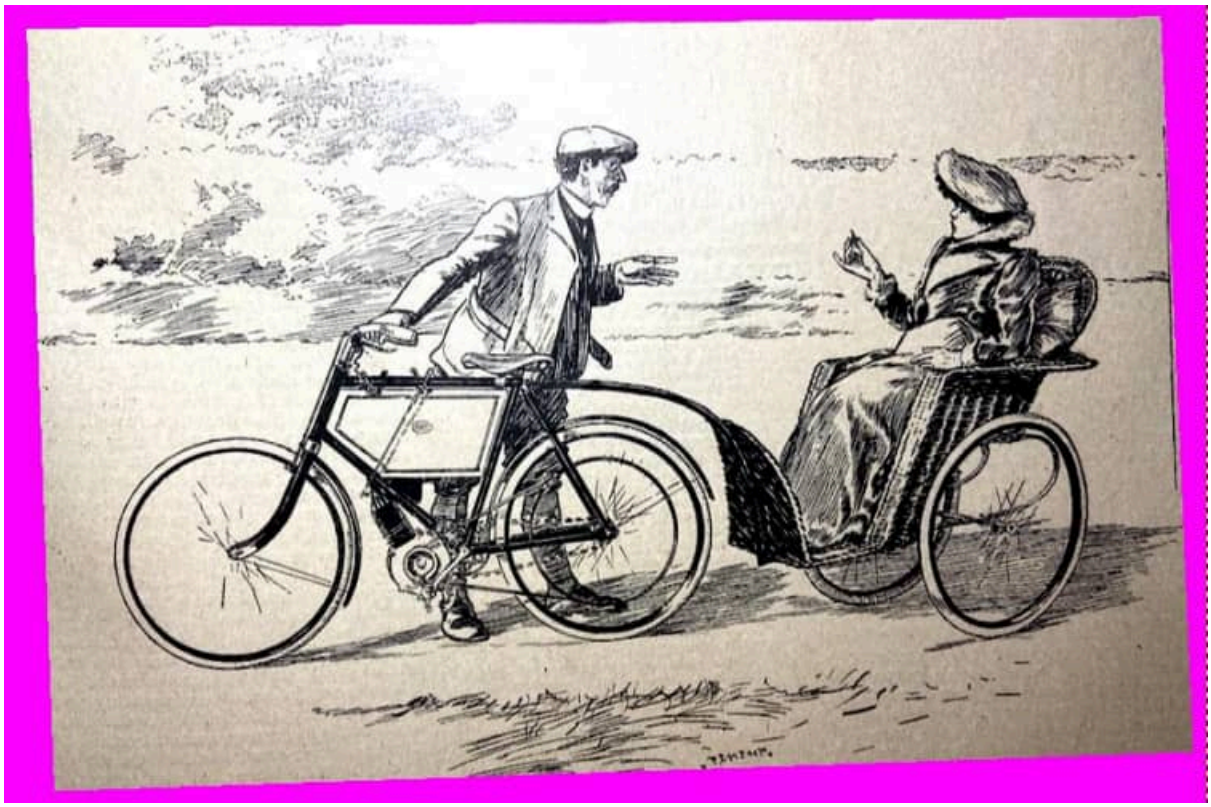
“IT IS POSSIBLETOCHARGEaccumulators from an alternating current by using a ‘recti□ðer’. Doubtless many agents and riders may have this alternating current supply □ðttedforlighting their premises. Now it is quite impossible to chargeaccumulators straight away from it, but if the little device illustrated is used the alternating supply is for all practical purposes converted into continuous current. Providingthe apparatus is properly connected up it does its work most eīiciently, and as there are no revolving or moving parts there is nothing to go wrong or wear out. To get a good idea of its working and construction will involve the possession of considerable electrical knowledge, but anyone can use it quite successfully by following the directions. We may just say, however, that the main parts of the device [below, left] are (1) a transformer, (2) polarizer relay, and (3) a series of incandescent lamps to act as resistances. To any reader interested in cyclo electrics—if we may coin a term—we shall be pleased to send full particulars explaining the theory and method of using the recti□ðer.



“WE HAVEHEREAnillustration of. a most compact and eīicient electricity generatingplant [above right]. It strikes us as being an almost ideal little machine to meet the requirements of the motor repairer who is in a fair way of business and wants to light his workshop, drive the lathes, etc, and charge accumulators. Theapparatus bears the names of two men world-famous in their respective lines—we refer to Gramme and De Dion. The □ðrstnamedis responsible for the design of the electrical part of the machine, or the dynamo, and the 3½hp petrol motor that runs it comes from the De Dion works. Thearrangementof the set will at once commend itself to the mechanical and electrical engineerfor its simplicity, and as embodying the verybest practice, namely, direct driving. Thisfeature is, of course, only rendered possible by the high speed at which the motor runs…Itwill light 50 8cp lamps, chargeup anynumber of accumulators up to 40 at one time then the dynamo can be thrown out of gear, and the motor alone will drive a fair-sized workshop. Altogether it weighs 450lb.”

“MY LATESTWEEK-ENDTRIPonmyExcelsior was the most successful that I have had, and the time that has been spent in getting everylittle detail up to its highestpitch of perfection was well repaid. Justlatterly, sparking plug problems had set in in the shape of intermittent □ðring.Ifound that the porcelain of the De Dion plug was cracked, and replaced it by a new Minerva plug. The intermittent nature of the explosions was put down to staleness of the petrol, but one day I bought a couple of De Dion plugs and □ðttedoneon,and then the motor worked like a charm, and has not mis□ðredoncesince.On the trip referred to, I should have accomplished a non-stop run of 47 miles but for the two dismounts. One was about half way, just for a glance at the rear wheel, because I fancied that I felt a looseness in that quarter; the other dismount was because the belt □ðewoī when travelling at a somewhat high pace. A few turns at the belt put that trouble right, and the looseness of the wheel proved to be naught but fancy. But it is strange how one can imagine a trouble, and how persistent the idea is. I had ‘detected’ my back wheel swaying

about, a quarter of an hour before, but would not stop until the turning point of the run was reached. Theaveragepace, I blush to relate, was over 18mph, and I found that milestones were occasionally but 2min 20sec apart. Theground covered was moderately hilly—that is, three hills were encountered up which cyclists were walking. I rode the whole distance without once needing to help the engine by pedalling. Theconsumption of petrol was 3½ pints, working out to about 107mpg."

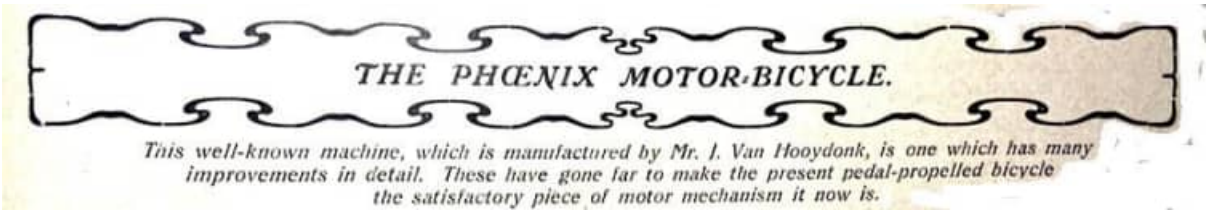


"**Motist:** 'Well, I've pedalled as far as I can, and simply can't go another yard. Where on earth can that connecting plug have gone?' **Fair Passenger**(producing plug): 'I suppose this is no use? I found it on the table at tea time, and I was going to ask you what it was.'"

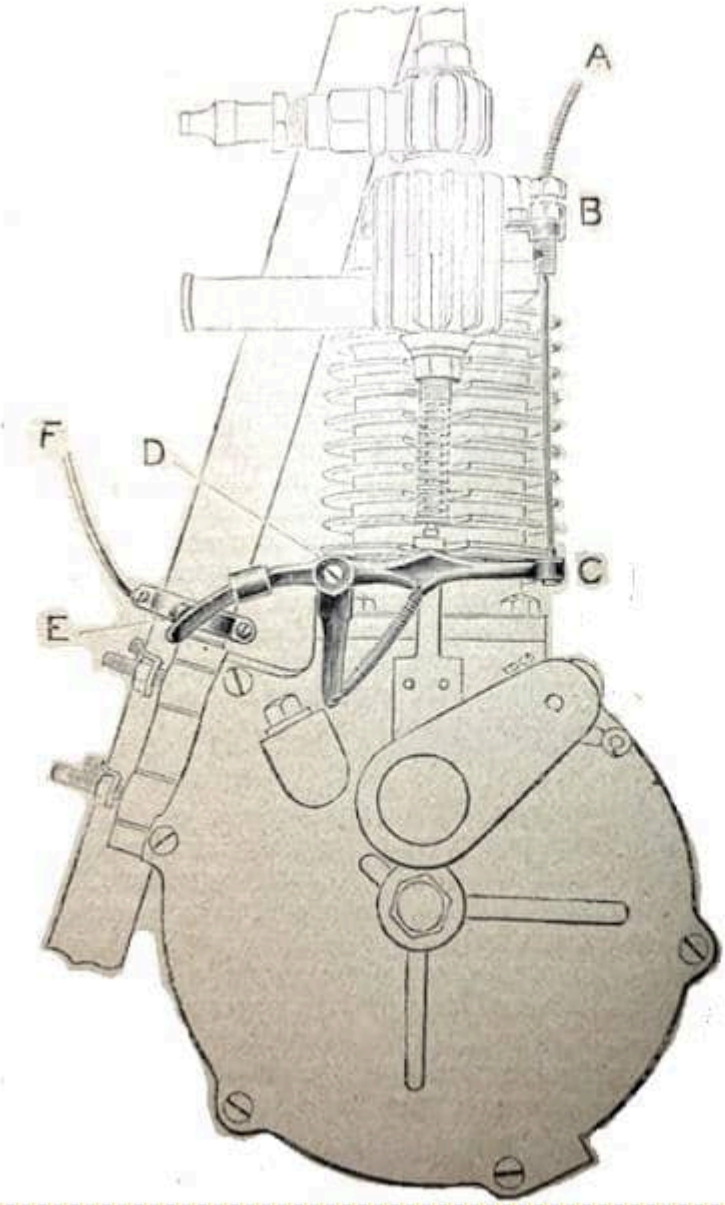
"AT NICE, IN THElast day's racing, M Williams, on 3hp Clement motor-bicycle, □ðttedwithtwo cylinders, coveredthe mile (standing start) in 1min 12⅕sec, which is a shade under 50mph . Osmont tied Rigal'stime on his tricycle, doing 57⅘sec. TheClement also did the kilometre □ðyingstartin40⅗sec, which is equal to 52mph."

"THE EXHAUSTBOX,orsilencer, is a detail of the motor's construction that would appear not to have received proper consideration, if one might judge from the noise created when the average motor-bicycle is travelling. Thedesirability of having the motor as free from an objectionable noise as possible is being just at present much discussed in the motor-cycling world. It is obvious that the noise will be a serious drawback to the motor-cycling movement at the outset. Most ordinary cyclists will agreethat the silent running of the cycles of to-day is one of its greatest charms, enabling conversation to he kept up en route without the slightest diīiculty between two or more riders; but this cannot be said of the motor-bicycle. In fact, one fears to imagine what it would be like to be in the company of a crowd of motor-cyclists on a long run or tour with the combined noise and clatter of 20 motors or so. Now, there is no reason whatever why this problem of obtaining a really eīicient silencer should not be solved. It has already been solved in connection with the best makes of cars, some of which, even of large horsepower, run

beautifully quiet, and might, in fact, be mistaken for being steam-driven instead of being driven by an explosion engine."


THE PHŒNIX MOTOR-BICYCLE.
This well-known machine, which is manufactured by Mr. J. Van Hooydonk, is one which has many improvements in detail. These have gone far to make the present pedal-propelled bicycle the satisfactory piece of motor mechanism it now is.

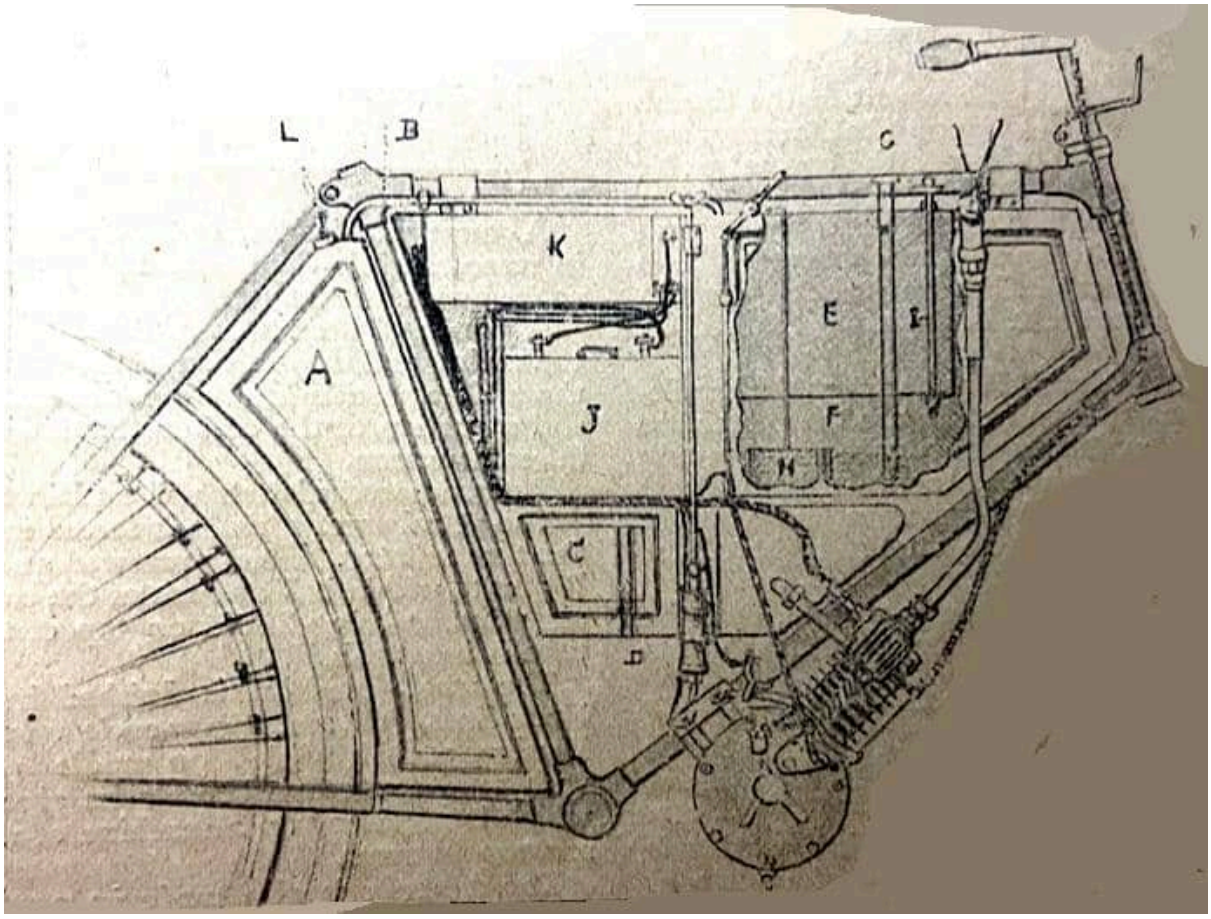
"MR HOOYDONK, A NOLD racing man who has taken part in cycle sport at various distances from a mile on the track to 24 hours on the road, and who is also a manufacturer, can con□ðdently be expected to know what a motor-bicycle has to stand; and naturally, when designing a frame to stand such hard work, pays particular attention to the vital matter of strength. At the same time he makes the wheel base about four inches longer than the ordinary machine, to ensure the steady running which is always associated with the added length, and by keeping the wheels 26 inches in diameter the whole is kept rigid, and allows of a low built machine. This is a source of great convenience in mounting and also enables the rider to touch the ground with both feet keeping the machine up should the occasion demand it, in traïic, or should an abnormally greasy piece of road give the machine a tendency to side-slip. The engine, is of the well-known Minerva type, an engine which has now proved itself suitable in every way for the purpose intended, added to which are such improvements as thousands of miles of hard road riding have proved to be necessary and desirable. One of the chief improvements is the manner of lubrication. This allows of introducing the necessary oil. into the crank chamber without the need of dismounting. It very soon became apparent to the practical rider that to have to stop to lubricate the engine every 20 miles or oftener was putting the machine at a great disadvantage, and the Phoenix was one of the □ðrst to obviate this messy and unpleasant performance. The carburetter, the function of which is to turn the petrol into vapour, which on being mixed with a certain portion of air forms the explosive mixture for the engine, is of the surface type, and a great improvement on the older pattern, when a bump in the road or an excess of petrol would upset the mixture. While a good many claims are being advanced in favour of the spray carburetter the pattern such as is □ðtted to the Phoenix is certain in action and economical in use, at the same time not depending on any delicately adjusted needle valves, small levers, and microscopical openings, such as are found on the spray variety. These, as well as being liable to be made inoperative through a little dust or foreign matter, arc also very troublesome in cold weather on account of the constant freezing, should the outer air be at all moist. The only objection that can be made to the surface carburetter is the delicacy of adjustment required on the air or mixing lever. This is entirely overcome by making the



"Combined exhaust valve lift and current interruptor." (Right)"Long lever to throttle and mixing valve."

handles of both the Throttle valve and mixing lever much longer than usual: The levers being six inches long, a movement of, say, quarter of an inch, which is quite practical at the extreme end, makes the movement at the lower or valve end in □ðnitesimal so that the nicest adjustment can be obtained as regards mixture, while the □ðne adjustment of the throttle allows the pace of the machine to be adjusted to every conceivable rate, from, say, □ðve to 25 mph. Should still further speed be desired, this can be obtained by advancing the spark advance lever. It is the working of the latter in relation to the throttle valve which enables the very best results to be obtained. We now come to a device which makes the Phoenix one of the easiest to control in traïic, and also considerably minimises the eïort required in starting. This is the combined exhaust valve lift and current interruptor. In the □ðrst place, this method of making and breaking the electrical circuit does away with the external electric wires, which in many instances while being an eyesore to the observer are also in constant danger of getting disarranged, causing short circuiting, etc. Also the wires being shorter, a higher eïiciency is obtained, which no doubt

accounts for the successful running of the machine in question. The negative wire F is connected on to the clip E, which is insulated from the frame. The rocking lever C, which is actuated by the Bowden wire A, and provided with means of adjustment at B, serves the double purpose of □ðrstbreaking the electrical circuit by being separated from contact with clip E, and on further being moved lifts the exhaust valve, thus freeing the engine from all compression, while no current or gas is being used. The other end of Bowden wire terminates into a catch lever situated on the handlebar and operated with the rider's thumb (Fig 3). A slight movement of the thumb lever B lifts the rocker and breaks the current at E; this immediately stops the engine, the compression of which then becomes a powerful brake; on further pressing the lever, the exhaust valve is lifted, freeing the engine; the catch C then falls into the notch E, and this, it should be noted, can be instantly released on pressing the smaller lever C. It will be noticed that the position of the hands on the handle-bar has not to be changed to stop or re-start the motor, no matter at what speed the engine may be running, and as only the thumb is required to perform the operation both hands are at liberty to operate the powerful front rim brake on the left, and the Bowden back rim brake on the right of the handlebar. The matter of brakes has' been carefully studied, and the machine can be.stopped in a much shorter space than would be the case with an ordinary bicycle. It is only when all is going well, and the speed or power of the engine has to be regulated, that the rider need touch the other levers and momentarily release the handlebar with one hand. Another point which has been studied in the Phoenix is the large capacity for petrol. A spare tank of registered design is □ðttedbetween the seat column and the rear wheel. This, with the tank and carburetter in the front portion of the frame, enables a distance of from 200 to 240 miles being ridden without any need for replenishing the fuel supply. It is only when riding a motor-bicycle, and covering longer distances than would otherwise be the case, that one appreciates the bene□ðt of not having to worry about the next petrol depot that might, be found; and the fact of being able to go out for a good week-end ride without having to bother about any supplies is worth more than would at □ðrst sight appear. The supply of lubricating oil is equal to about 800 miles, while the accumulator on an average will run a like distance. A gauge glass is □ðtted to the oil tank to indicate the quantity in reserve, while the petrol in the carburetter is kept under notice by the usual □ðoat. A sketch of the tanks as □ðtted to frame is given, showing the wiring and the position of the various parts. The door of the middle portion has been removed for the sake of clearness, and a portion of the carburetter is also shown cut away for the same reason. Reference to the letters will explain the whole system. The petrol from tank A is forced into tank E by means of the tyre in□ðator. This is screwed on to nozzle L. The tube B goes to within half an inch of the bottom of tank A, and on air pressure being forced on top of the petrol this □ðows up tube B into tank E. The whole machine is □ðnished in aluminium with neat black lines, full 2in motor-cycle tyres,' Clipper, Clincher, or Dunlop, and Brooks' B 90 saddle is □ðtted, and wide pedals with solid square rubber blocks give the rider the comfort which is necessary on a machine of which the pedals merely serve as footrests. The Phoenix is also made in combination tandem form, a machine which forms an ideal touring mount for a lady and gentleman. While possessing the speed of an average motor-car, it retains the handiness of a bicycle, allowing it to be stored almost anywhere, and should bad weather overtake the touring couple the nearest railway station is all that need be looked for, a convenience to be preferred to driving in inclement weather for many miles , and the sociable side is obviously not overlooked."



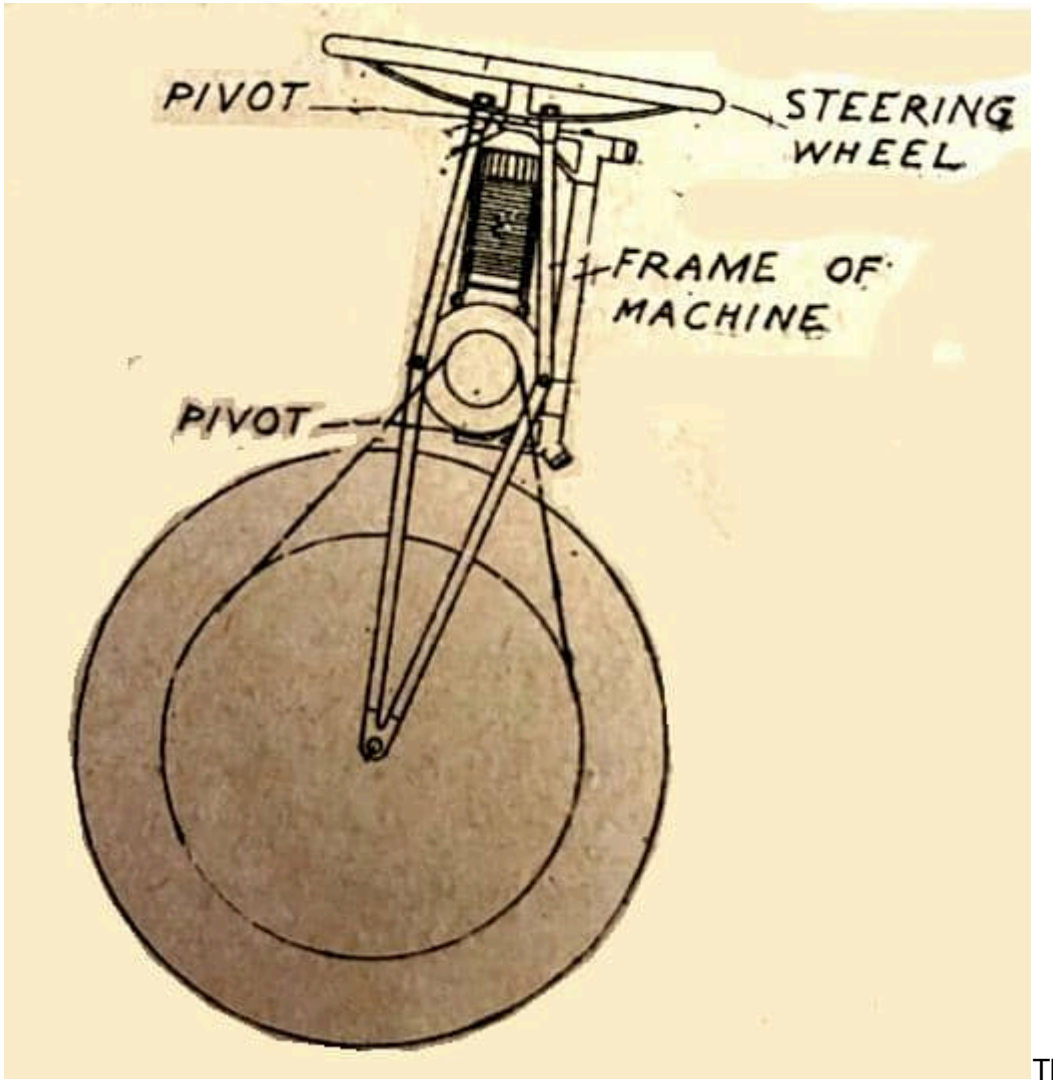
“The internal arrangement of the Phoenix. A, Spare petrol tank; B, tube connecting A to E; C, lubrication oil reservoir; D, lubricator; E, petrol tank; F, carburetter; G, chimney admitting air to F; H, □ðoat; L, nozzle for air pump; I, valve admitting petrol to F; J, accumulator; K, coil.”

“JAMES DAWSON AND SON, Lincoln, have brought out a new belt, after a series of experiments in leathers of various kinds; this they call the Lincona. The company claim that the leather (specially prepared by themselves only) is of exceptional tensile strength and □ðexibility, while being almost entirely free from stretch. The shape is slightly V, the grip being obtained by a wedging process of the belt bearing upon the sides of the pulley, ample clearance being allowed below. The belt is of suīicient thickness to withstand the most severe tests without buckling or breaking, a sudden strain only increasing the grip upon the pulley and thereby avoiding the dangers consequent upon an engine ‘racing’. We understand the belt has been used with notable success upon a ‘Rex’, which Mr HW Stones rode in the Crystal Palace tests and elsewhere.”

“HOWEVER SLOW MAY BE the demand for the spring frame amongst ordinary cycle riders, there is every evidence that for the motor-cycle its coming will be swift and sure. Even with the small powered motor the rider experiences a certain amount of discomfort with a rigid frame, while the accessories, if not well made, show a tendency to shake loose when a fair speed is kept up over give-and-take roads. Steps have already been taken to provide comfort for the rider, by introducing a spring handlebar, a spring seat pillar and spring forks. These have, of course, to be specially made for the purpose, and it is almost worse than useless to use patterns which have been made for the ordinary type of machine. It is more than probable that a strong, simple and business-like resilient frame will be devised, and this will, we believe, □ðnd a ready market.”

“MANY AND VARIED are the spellings and pronunciations of the name De Dion Bouton which meet the eye and ear: we have heard it called ‘Te Deum’, also ‘Dee Dyon’ (with the accent on the ‘y’), but now we see it written ‘de Dan Bantan motor’, and this in a technical paper too!”

“MR AJ WINSHIP HAS recently invented a method of mounting the engine so that its centre of gravity lies in the line of the steering axis. In the illustration it will be noticed that the front fork consists of two tubes on each side of the wheel, which are connected together at their upper part by means of a steering wheel. The frame of the machine is pivoted to the top and bottom of the motor, which is supported at the upper part of the fork by means of clips which connect the tubes rigidly together.”



The steering wheel was attached to the engine.

“DISTANCE SEEMS TO BE a negligible quantity to the motor-cyclist. HT Arnott, the old Bath roader, was met last week end at Biggleswade, where he and his son, ET Arnott, had ridden over to Eaton Socon from Northampton on Princeps motor. bicycles. HT was looking for North Road Club friends returning from Peterborough and was much disappointed that he missed the imposing cavalcade.”

“THE NEED FOR ONE or two spare parts for the Minerva engine took us to 158, High Holborn, last week, where the agents for this popular engine have opened a repair and supply depot. We

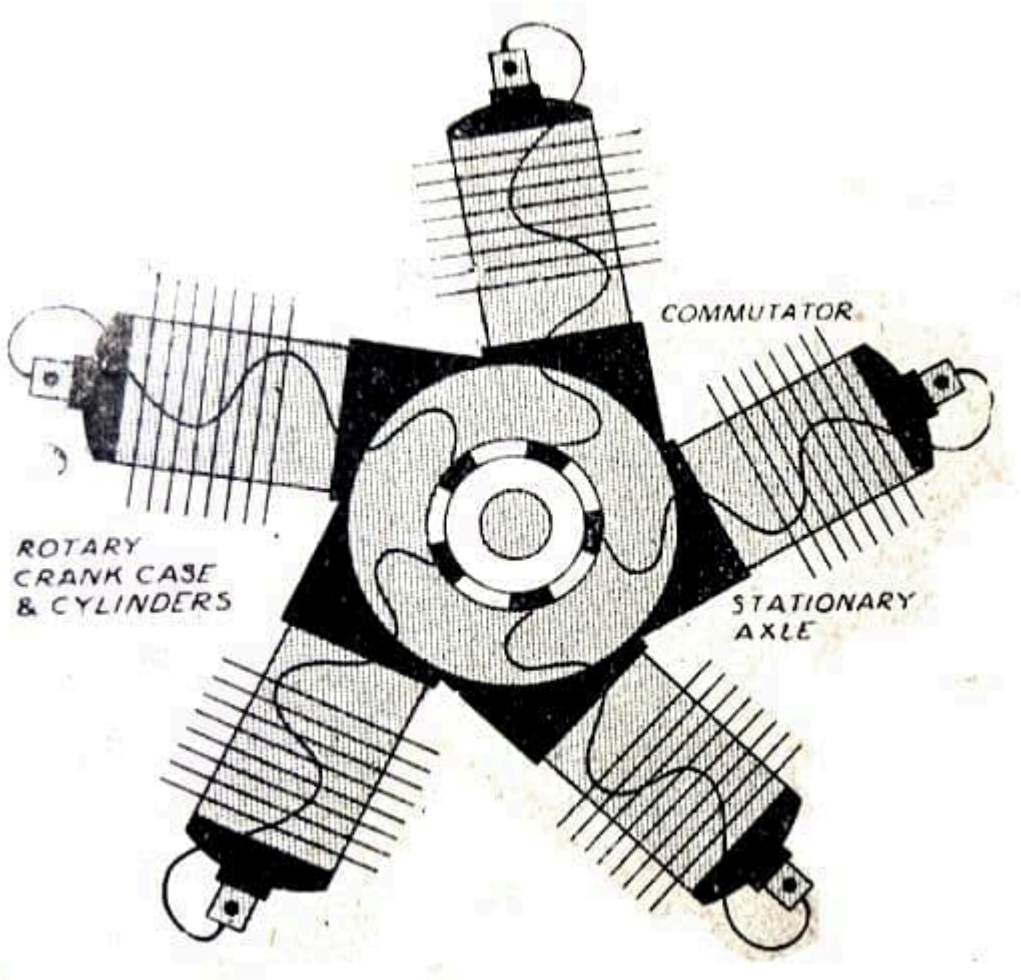
were immediately supplied from stock. Later on, we started to □ðttheparts to the engine, so that there should be no question about their suitability when the need should arise for making use of them. We were surprised and pleased to □ðndthatverylittle □ðttingwasrequired: in most cases the parts dropped into their places straight away, and particularly well in the case of screwed parts did the threads engage. This has not always been our experience, and, having found it so in the ease of Minerva parts, it is worth recording."

"A MOTORCYCLEWEDDINGIS thelatest novelty. According to a newspaper report, the bride, bridegroom, four bridesmaids, the best man and the father of the bride came to the church on motorcycles. Then the happy pair left for Brighton on a motor-tandem."

"LJS (BRIGHTON)—INCONSTRUCTINGasparkcoil you must adopt the sectional form of winding. Thesesections should be thick—if you wind in layers breakdowns are very probable — para□ðnnedpaperseparatingdiscs are better than ebonite; approximately, you want ½lb No l6 dcc wire on primary, and 1½lb No 36s s silk for secondary; core, ¾in diameter by 6in long, of very soft iron wire. A full article on coil building is in preparation."

"THE TOLL-KEEPERATDUNHAMBridge, between Retford and Lincoln, still refuses to allow motor-tricycles to pass over at less than 1s 6d, though he only charges 2s for cars, however large. As he charges 6d per wheel, it seems as if he will charge 1s for a motor-bicycle. Still, he has let the only one he has had through at 2d, the price of an ordinary cycle."

"THEREISTOBESEENrunning in the window of a motor depot in New York a petrol motor of high power and eīiciency involving a new principle of construction entirely. It has □ðveseparate cylinders arranged in such a manner that they actually revolve around a □ðxedcrank. Each cylinder is □ðredinrotation from a special coil and □ðve-partcontactbreaker. The result is a remarkably smooth and even movement. In the ordinary single-cylinder motor, an impulse takes place every two revolutions; but, by adopting this new principle, we get □ðveimpulsesforone revolution. It is quite possible that this idea may form the key to the ideal bicycle motor, namely, a high-powered, compact, and low-speed type of engine, so that direct driving may be possible. Another curious feature of this system is that the revolving crank case serves as the driving pulley."



Debut of the rotary—the pots spun round the crank.

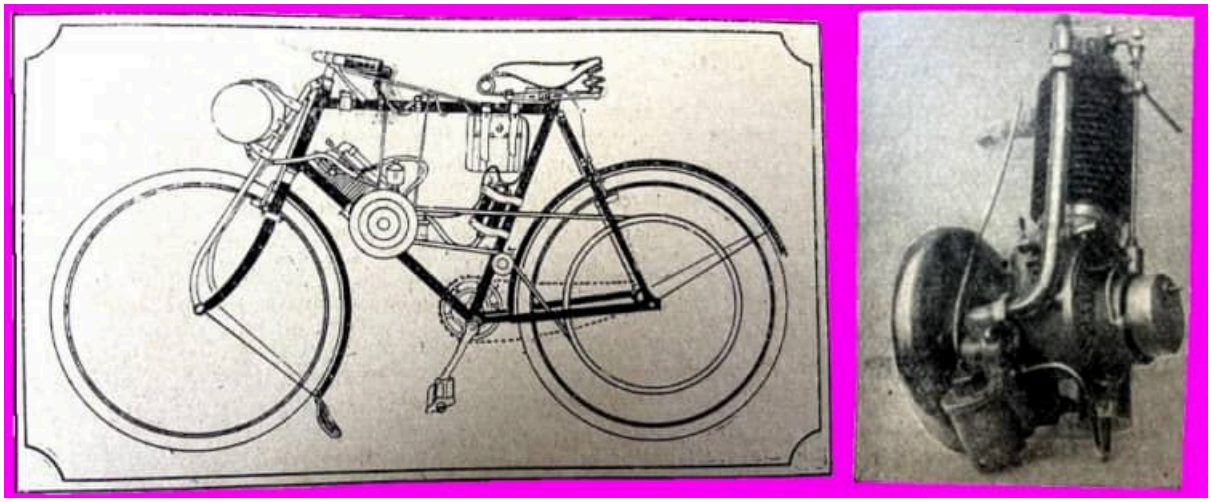
"THAT THE PRINCE of Wales knows something about, and appreciates the merits of the motor-bicycle, was evident by the interested manner he inspected the Humber motor-bicycles when visiting the Hall on Wednesday last. He appeared very anxious to learn how the chains acted, as opposed to the □ðbrebelt."

"SIR—I HAVE JUST □ðnished a journey of 470 miles on a Singer without touching a nut or screw. I consider its chief claims are workmanship, reliability, ease of control, its splendid hill-climbing; the ignition is perfect, and one has not the worry of sparking plugs breaking or accumulators to look after. The machines are not so speedy as some others on the market, but they are fast enough, 25mph, and although only a novice, I covered 162 miles in 12¾ hours, including stoppages for oiling and 1½ hour's rest for dinner. The machines are made to stand hard wear, and I am convinced that in this and other respects the makers have been successful.
'Novice'.

THE CLEMENT-GARRARD MOTOR-BICYCLE.

"THE COMBINED EFFORTS OF the well-known □ðrms of Messrs. Clement, in France, and Garrard, in England, have for some time past been directed towards the perfecting of a bicycle

motor set…Onecan see at a glance that the motor is possessed of a striking individuality in the design and arrangement of the various parts. Moreoverit is extremely light, and it embodies many of the latest and most advanced principles in its construction. As far as the □ðnishand workmanship are concerned, anyone who knows the reputation the combined □ðrmshave attained in the □ðeldoflightengineeringwill admit that their names are a suīicient guarantee in this respect. Themotor is of the four-cycle, air-cooled type, the dimensions of the cylinder being 55mm (2 3/16 in)diameter,and 60mm (2 3/8 in) stroke. The crank, axle and pin are in one piece, forged out of tough steel, case hardened, and ground dead true afterwards. An outside □ðywheel is provided, case hardened and ground dead true afterwards. An outside □ðywheelisprovided, and this has a nicely rounded periphery. Thevalves are carried by the cylinder cover, and are actuated in a novel manner. Theignition is electric, with positive 'make' trembler. A viewing hole for seeing if the sparking is eīicient is one of the many clever devices □ðttedtothemotor. The silencer is of eīective dimensions, and of the cylindrical type. Thedrive from the motor is by means of a leather belt on to a pulley attached to the rear wheel of the bicycle, and a jockey pulley is provided to enable the tension of the belt to be adjusted to a nicety. Thecarburetter is of a simple jet form, and is fed from a supply tank which is mounted on the front of the bicycle. A coil, giving a strong spark , and accumulator of 20 ampere hours capacity is supplied with the set. Themakers state that the set can be successfully adapted to any strong roadster machine of standard pattern. Theweight all on will come out well under 60lb, ready for riding."



Clement-Garrard was happy to put the motor into cycling.

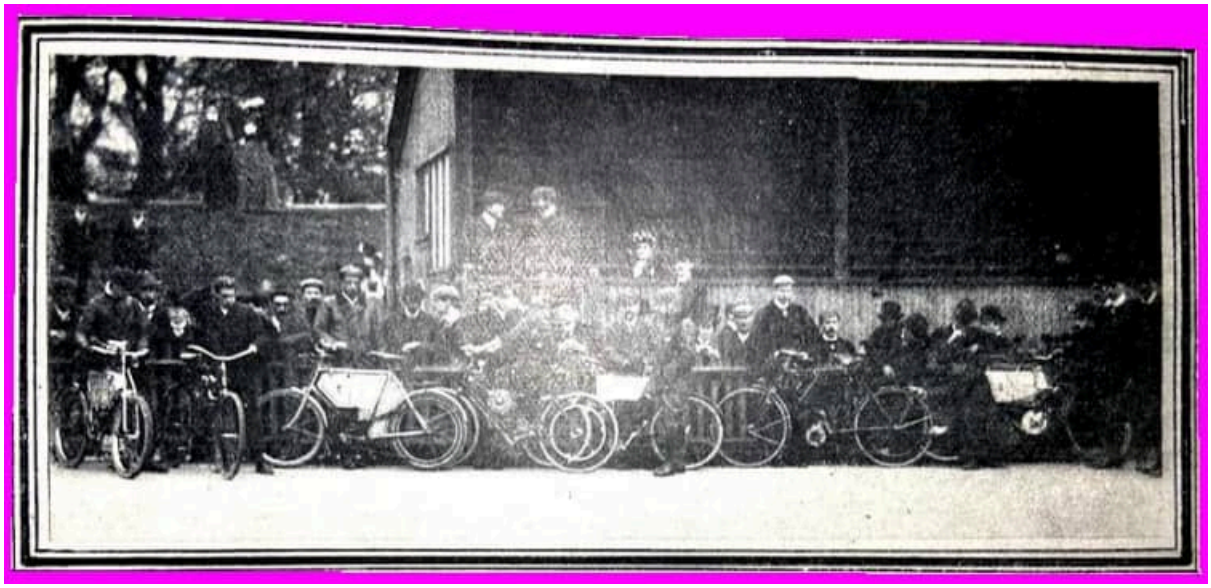
"ON THEROAD:Atrial run on a Clement-Garrard motor-bicycle. Thecompany recently placed one of these machines at our disposal, and a □ðneweek-endbeingprobable, a member of the staī determined to giveit a trial. It must be confessed that at □ðrstsightwehadour doubts as to the ability of such a light and dainty little motor possessingsuīicient power for serious work on the road. However, there is nothing like an actual trial to prove the justi□ðcationorotherwise of such doubts, and having got the machine adjusted, it was taken out on the North Road. It started working straight away with a noiselessness and freedom.from vibration that was very pleasant. A little delay was experienced after about two miles' running, which he found was due to the contact breaker getting covered with oil, as some absent-minded person had evidently been amusing himself by working the oil pump during the transit of the machine from the works. Theplatinum cleaned, he got going again and made for Hat□ðeld.Upmostof the slopes the little Garrard went in □ðnestyle,anditwas not until reaching what might be called a stiī rise that the pedals had to be used, and.then the lightest strokes were suīicient to keep the motor up to speed. On the level the speed is equal to anything that can be wished for in reason, and in

coming to a really long and stiff hill he just pushed forward the spark lever and opened the throttle to the full extent. The Garrard raced up, and did not show signs of labouring till two-thirds of the way up, when a little help from the pedals was needed. On the return, some rather greasy stretches of road load to be taken at a very slow speed, and this could be managed very conveniently with the combined spark advance lever and valve lifter. There did not seem to be any tendency to side-slip whatever. Running through traffic is as easy as with an, ordinary safety, in fact, the cyclist begins to feel thoroughly at home, and except for the fact that he is not pedalling, would think he was on his old mount. Very few people notice that the machine is a motor-bicycle, so unobtrusive is it in appearance and silent in the running. The following day, the roads being in splendid order, he had another trip—to Epping and back—the behaviour of the motor again being all that could be wished for. It stopped once, owing to the wire from the coil to battery coming off the terminal and again through the belt hook pulling through. These delays were but of a few minutes duration and the faults soon repaired. The two runs totalled up about 72 miles, but we hope to be able to put the machine to a still more severe and exhaustive test shortly. We prophesy a big future for the Clement-Garrard if it is equal to an extended run—say, a tour—and, so far, we see no reason to suppose it would prove otherwise than to the task. The features of the Garrard that most impress us are, first, its lightness (just over 60lb all on); secondly, the large amount of power developed for its size; and, thirdly, the high quality of the workmanship and ease of manipulation."

"A BROOKLYN (NY) GENIUS has secured a patent for a curious device for creating energy by feeding a tape of explosive caps into a chamber where they are successively exploded by a mechanically driven hammer. The resulting gas from each explosion passes into a pressure storage chamber, whence it is drawn into an engine in a manner similar to that in which steam is taken from a boiler into a steam engine."

"SAXONY ENFORCES A DRIVING test from all motor owners, who have to carry large number-plates on their vehicles. And as cars or cycles out for a trial spin could not be included in these rules, it has been decided that these cars must carry a poster with the words 'Fahrzeug auf Probe' ('Vehicle on Trial') printed in big letters. We have not come to this stage yet."

"THE MOTOR-BICYCLE EARNED the good opinions of everybody as a pacing instrument in the hour race amongst members of the Polytechnic Cycling Club at the Crystal Palace on Thursday. For it proved itself fast, safe, and reliable—subject to no tricks and possessing no bad habits. GV Rogerson his Mitchell, and H Martin on his 2¾hp Excelsior were fairly evenly matched, and with their track experience proved very capable pacers, and each man was obviously able to take his man along at another five or six miles an hour faster if he had wanted it. Wilkins rode Hooydonk's Phoenix, covering over 29 miles in the hour, and he was apparently suiting the pace to that of the rider. Leonard was on his Werner, Rivett on his Blizzard, Parry on his Minerva, and there were one or two other machines. Tandem bicycles were completely outclassed in the matter of speed, but the silence with which a tandem paced rider went by was a little bit weird."



“A group of the pacing machines at the Crystal Palace on Thursday evening last.”

“IT IS A PET NOTION of mine that I am not more faddy or fussy than the average man who wants things right. But I must say that leather clothing is not to my taste by a long way, and up to the present I have been content to secure warmth by a plenitude of ordinary garments, with the concession of a pair of gaiters and a chamois leather cap. But one or two chilly rides during the recent splash of winter have caused me to think somewhat seriously about a leather suit, and I have even got so far as to nearly persuade myself that that which is inevitable must be suīered. But, just at that stage of my thoughts, there approached on a motor-bicycle a greatly esteemed friend of mine in leather from top to toe, wearing goggles, and generally looking a horrible fright. In fact, he himself was unrecognisable, but the get up, being familiar, enabled me to establish his identity. We dismounted, and I blushed to be seen in such company. When we parted I went my way with the □ðxeddetermination to eschew leather garments and goggles. They make one look more like a mechanic than a pleasure-seeking owner of a speedy vehicle, and they really make too serious a matter of pleasure.”

“The ﬁrstmeetofthe Motor Cycling Union of Ireland in Phoenix Park, Dublin.” The driver of the quad on the left of the pic is JBDunlop, who no doubt became used to his clubmates dropping hints about tyre discounts.

THE DASHWOOD HILL TRIALS.

“CARS AND CYCLES ASSEMBLED at Belgravia early in the morning, where fuel was measured into their tanks, and they were then dispatched under the eyes of observers. The main Oxford road was in good condition, but two or three patches of new metal dotted here and there, with the liberal dressing of water they had received, were by no means so welcome to motorists. In places the roads were as dusty as if rain was a luxury in those parts. The passage of such a steady and lengthy stream of motor vehicles excited a great deal of interest in the towns en route. The breakdowns were exceedingly few, aﬀording an interesting contrast to what would have been the case but three or four years ago. The Serpollet steam car, we learned, had torn its tyres badly. A motorcycle bad broken its belt—and two cars were seen pulled up at the roadside, but they were at Dashwood very soon afterwards. There were some half-dozen motor-cyclists and every one made a really excellent show. B Yates on the Humber managed on more than one occasion to do the journey without using the pedals, and he seemed to be travelling fast. Martin on the Excelsior, Hooydonk on the Phoenix, Wright on the Kelecom, Nixon on the new Hewetson, and Adams on a Kelecom also did exceedingly well, and we shall not be surprised to ﬁndthattheirtimes are better than those accomplished by many of the cars…In fact the ease with which the cycle surmounted the bill was a pleasure to the eye. Whilst the seemingly interminable hill-climbs were proceeding (they occupied about ﬁvehours) theoﬃcials at the foot of the hill were measuring petrol in and out of tanks in order to ascertain consumption on the outward journey and on the.hillclimbs. The Hon John Scott Montague brought, on his 20hp

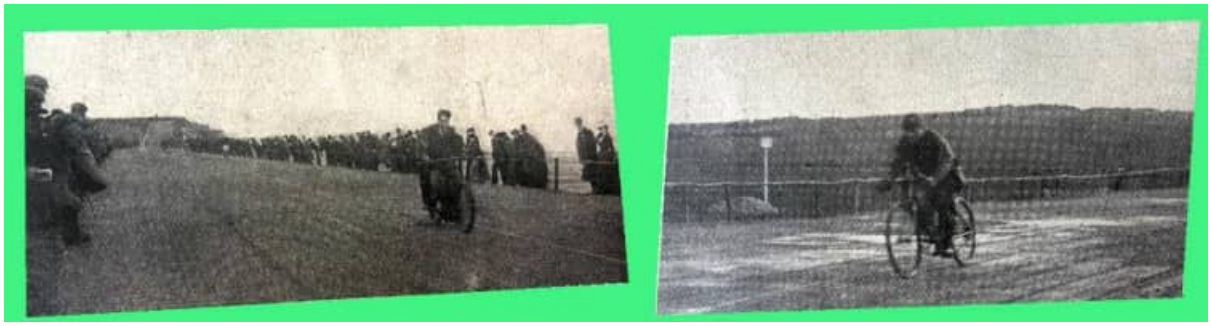
Daimler, the Rt Hon AJ Balfour and we ordinary mortals had the unique pleasure of seeing a cabinet minister sitting in a hedge eating cold beef and other concomitants…A very large number of motor-cyclists and cyclists were about on the roads accompanying competitors or as spectators. In fact Saturday gave us one of the biggest gatherings of motorcyclists we have yet seen."

"Martin and Hooydonk ready to start. The inevitable dog was there!"

ON MONDAY 19 MAY 1902 British motor racing was born in Bexhill-on-Sea. The 8th Earl De La Warr had encouraged the Automobile Club of Great Britain and Ireland to organise the 'Great Whitsuntide Motor Races'. In 1896 the Earl, who had 'business interests' in Dunlop, set up a 'Bicycle Boulevard' along the seafront, from the Sackville Hotel in the west to Galley Hill in the east—it helped that he owned the entire seafront. In 1902 the cycle track was upgraded into a one-kilometre race track: as private land it was exempt from the 12mph national speed limit. The races were part of a campaign to promote Bexhill as a rival to Monte Carlo—a seaside resort for the jet set. Motor cycles had races of their own ["It is interesting to note the de□ðnitionofa motorcycle, as given in the programme of the AC Bexhill trials: a vehicle weighing under 250kg=4cwt 3qrs 20lb."]; in any case the full title of Motor Cycling was Motor Cycling & Motoring. The new magazine was fully aware of the importance of the Bexhill Trials…

(Right)"View of the track taken from the Sackville Hotel."

“THE DERBYDAYOFAUTOMOBILISM.Quite a new sport is opening up and quite a new class of sport-goer is being created by the advent of the speedy motorcar; for the British public were able on Monday to see motor vehicles travelling at a speed never previously attained in their presence. Theysaw for the □ðrsttimeandwere able to realise what 45 and 50mph really meant and probably, as a direct result, we shall graduallyhear fewer and fewer wild tales of motors travelling on the roads at ’60mph’. If only the police force of the country could he giventhe opportunity of witnessingsuch demonstrations their tall yarns, as manufactured for the ears of blind Justice, would sensibly diminish. Monday’s meeting at Bexhill, thanks to the immunity from police interference aīorded by a private road, was educational in more waysthan one. It demonstrated to the thoughtless that recklessnessdoes not necessarilygo hand in hand with speed, but rather that coolness, skill and resourcefulness were its handmaidens. To the thoughtful it demonstrated in a most unmistakable manner that the careerof the motorcar has scarcely begun, whilst its manufacture has alreadyreached that stageof reliability which one associates with the building of railwaylocomotives. Theattention which the trade is payingto the comfort of the driver and passengerswill haveits immediate reward, and particularly welcome is the improvement recently eīected in methods of silencing the exhaust. We con□ðdentlybelievethat the motor-bicycle received a distinct □ðllip.Cycleswereseen in the races travelling at not less than 30mph, and even up to 40 without any apparent strain on the driver and without a suggestionof instability, although the course was wet to the point of slipperiness. Particularly pleased were we at the sportsmanlike behaviourof all the competitors, and if the Automobile Club will seriouslytake to heart the criticisms which are sure to be passed upon the manifest defects in the management of the meeting (we speak quite from the spectators’ point of view) and will endeavourto avoid them in future gatherings,we may con□ðdentlylookforward to □ðndingtheannual Bexhill carnival the Derby Day of Automobilism…”Bexhillhas been bathed in an atmosphere of’ automobilism during the past three or four days. TheEarl de la Warr con□ðdentlyexpressedhisconviction that the sports would be witnessed by 10,000 people, and, although the weather was far from being propitious, his expectations were,we believe, just about realised. Visitors commenced to arrive as early as Friday, whilst by Saturdaythose who had travelled by car already commenced to outnumber those who had come down by mere ordinary methods of travel. By SundayBexhill began to feel the pressure, and not only were the Sackville and Metropole full to the point of over□ðowing,but it was getting more and more diīicult to □ðndroomsinthetown. Thechiefs of the Automobile Club had their hands very full, and one would □ðndoneselfunexpectedlyand unwittingly intruding upon some committee meeting; in fact, meetingsof this kind were goingon practically the whole time…Perhapsthe most notable feature of the trials was the gatheringtogether of so many of the best class. Unquestionably motoring has taken complete hold of the higher classes, not a few of whom havetaken to the racing vehicle, with its few pretensions beyond speed pure and simple. Thetrack extendsalong the sea-front from the top of Galley Hill, which lies to the east of the town, to the estate gates, at about the centre of the parade. It is about 1,300 yards in length, and is of ample width, the surface being macadam with a gravel dressing.

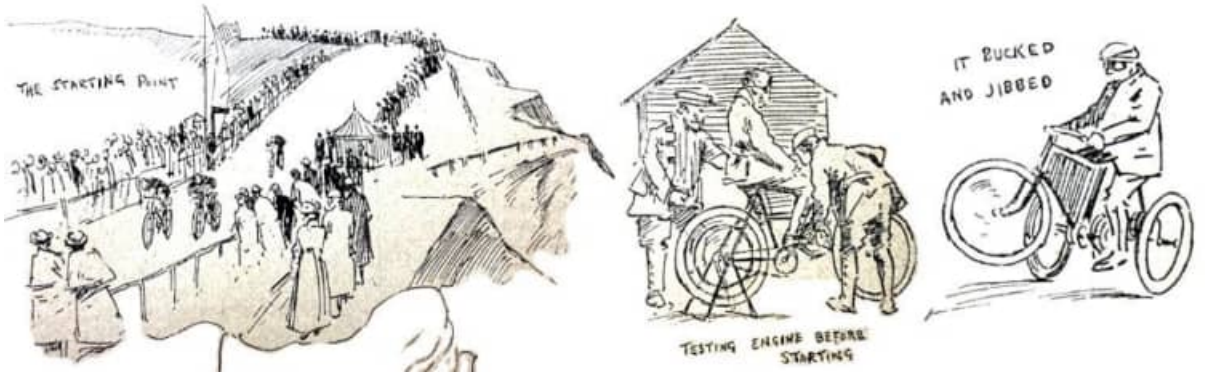


“F Chase □ðnishingintheMotor Cycling Cup race.” (Right)“EH Arnott on the ‘Various Makes’ machine.”

“The Motor-Cycling Cup. Thefollowing is the inscription on the reverse:‘Automobile Club of GreatBritain and Ireland. Speed trials at Bexhill-on-Sea. Whit-Monday, May 19th 1902. TheMotor-Cycling Cup, presented by the proprietors of Motor Cycling, for the winner in Class D, for racing motor-bicycles weighing over 112lb.’ “

Special pains have been taken to get it into good condition, and these eīorts would have been rewarded but for the saturating rain that fell at pretty regular intervals each day and during nighttime. Until late on Sunday, the greater part of the course was chained oī, the road on the land side of it being available for traīic, which could run on to the last few hundred yards of the course. Some magni□ðcent cars, from the 50hp Napier downwards, were running about, and a few cycles also put in an appearance, bit the greater number of the competitors on cycles did not reach Bexhill till nearer the hour of the racing. Some occasional bursts of speed were indulged in, but there were too many people about, not to mention dogs and small boys, to permit of much advance of the sparking lever…)nscarcely likes to criticise where one sees a large amount of organisation has been done, but certainly the Automobile Club has yet to learn the ABC of sport promotion. The public were almost entirely ignored, whilst the press experienced a great diīiculty in getting information…Then there was a lamentable absence of showmanship. The waits between the heats were inordinately long, and as a result the programme dragged considerably. The tourist cycles class was the □ðrst to be run oī, and of this there were but two heats. EH Arnott, on the 2hp Werner, started with J Van Hooydonk on a 1¾hp Phoenix, and reaped the advantage of his higher power, winning by a full 50 yards. In the second heat B Yates on the 2hp Humber opposed A Westlake on a 1¾hp Minerva, and the former secured a well-merited win by 40 yards. In the □ðnal heat, EH Arnott met B Yates, but the former was slow in getting started, with the result that he lost about s 20 yards, and it was by about this distance that Yates won. The times of these events were not obtainable…The races in the speed section were got through with much greater expedition—perhaps not unnaturally. The □ðrst event was the race for the Motor Cycling Cup. There was a touch of speed about each heat which was quite refreshing. The heat winners were: H Martin, who on the Excelsior beat Watson on the Chapelle; FW Chase, who beat SA East on the Shaw by about 200 yards; B Yates on the Humber; and FG Notley on the Orient. In the □ðnal, Chase, who was riding a 4½hp Soncin, came right away from the start and quickly gained a big lead. He won in 54⅕sec—about 41mph. Martin was doing excellent time, but he had a hopeless task against the purely speed machine which Chase was on. Notley was third. Yates made a bad start, otherwise he would have been closer up. We understand that Chase has since been disquali□ðed, on account of the silencer of his machine being removed. A □ðne burst of speed was seen in the race for speed tricycles. Three machines started, and a close race elicited the cheers of the crowd. Chas Jarrott's 8hp De Dion won handsomely, at what looked like 45mph, Ralph Jackson on the 8hp Eagle being close up. JS Overton won the De la Warr Cup for racing voiturettes, and SF Edge's 30hp Gladiator, driven by Mercier, won the race for cars weighing between 12 and 15 cwt. The race for light racing cars produced a magni□ðcent contest between three 20hp Darracqs. They looked the very symbol of speed…In the □ðnal, Baras won in 42⅕sec—about 53mph…Baron Rothschild made a couple of attempts with his 40hp Mercedes, but his times were 57sec and 57⅖sec, the slowest of all. Mr Rolls won the big racer's class on his 60hp Mors…M Serpollet provided the sensation of the day. His unique white car, tapering to a point at the prow, could be seen every now and again manoeuvring at the top of the hill, and its swift rush down the level and along the course attracted instant attention…his □ðnal attempt was made on the 'Easter Egg' of similar shape and design. Both of these were said to develop 120hp…the donors of the trophy oīered for the best performance of the day have decided to present it to M Serpollet, in recognition of his sportsmanlike attempts to win it [the Egg did 54mph]…The very atmosphere reeked with the-smell of paraīin. No cabs or horses to be seen; only throbbing, puīing, and snorting motors everywhere. Wild-looking individuals in strange garb—some of which would frighten a Red Indian out of his skin—had taken possession of the hotels and boarding houses. Nothing talked about, only horse-power, kilometres, exhaust boxes, sparking plugs, and such like-

paraphernalia—and such languages, it was. like the Tower of Babel let loose. One had scarcely got oī to sleep on Sunday night before the clatter and banging of these weird creations had commenced once again. No use trying to sleep; one had to get up and see the fun. Away up the bill at the far end of the course one could see a puī of smoke and a fair-sized speck emerge from it: a few seconds, and, lo! a monster dashes past, causing the very earth to tremble. Mud, mud everywhere splashes oī the wheels right up to the windows of the boarding houses; of the drivers of these distance annihilators nothing could be seen except a crouching □ðgure with streaming hair, whose hands had a death-like grip of the steering wheel. The life-insurance premium of these men must come fairly high, for there seems to be very little between them and the next world. Yes it was a strange and uncanny sight to. see the □ðying boxes of machinery dash past at 60mph."



"INTERESTING FEATURES OF THE motorcycles at Bexhill. An observer on the lookout for novelties and smart ideas found plenty to interest him on and round about the track. Arnott's racer struck one as being a strange, rakish-looking craft, with its long wheelbase, racing handlebars, and small-diameter tyres. There was a look of speed and power, too, in the cut of its motor, which, by the way, was a chain driver."

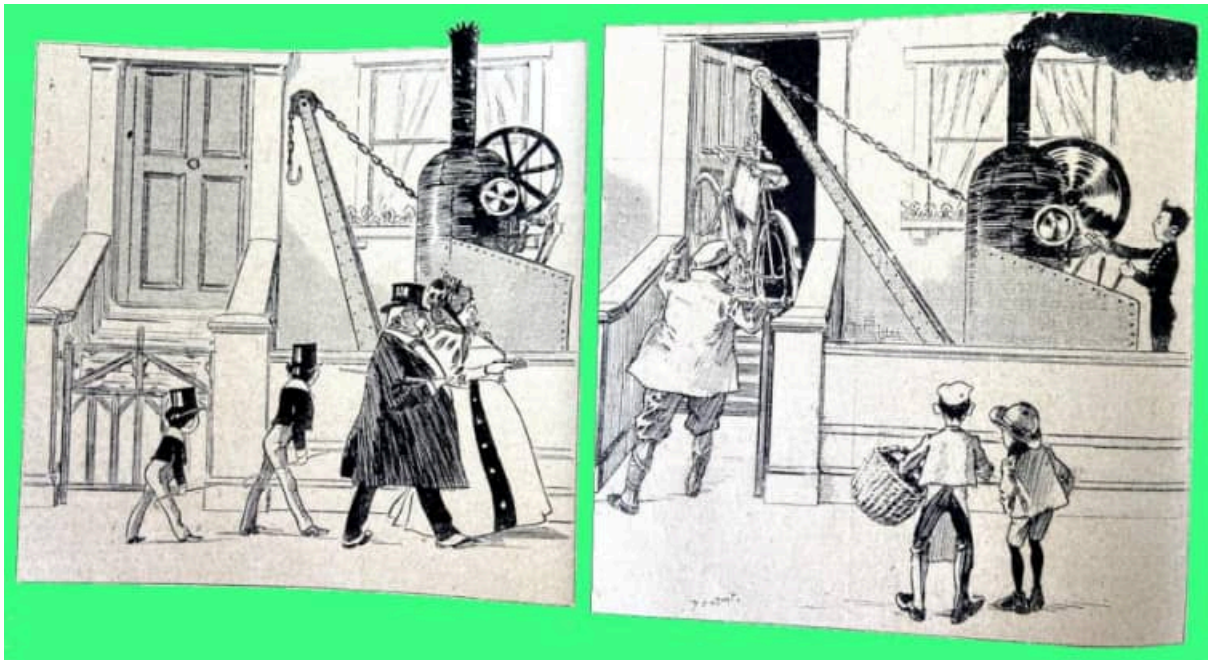
"MARTIN'S 2¾ HP EXCELSIOR embodies some smart ideas in its design and equipment. We noticed the driving pulley of the motor was of respectable size and section, driving by means of a special V-belt on to the back wheel rim. This belt appeared to be made of two thicknesses of leather rivetted together, and the fastener passed through metal eyelets □ðxed to the leather. A portable stand was also cleverly contrived as a permanent □ðtment to the machine: this was pivotted at the back fork ends, so that it could be swung up over the back mudguards when not in use. In the 4½hp Soncin we had a veritable □ðyer, although the design of the machine might be termed weird. The noise of the exhaust is a most, peculiar one, sharp and penetrating to the ear, such as there would be no mistaking it for any other machine. The gearing must have been a high one, because, even at top speed, the explosions were by no means rapid. The position taken up by the rider is also a characteristic one, the handlebars sweeping back in the shape of a long U. The Humber chain drivers created a favourable impression by their smooth running, the musical hum of the chain speaking of the good work put into the gears, etc. A New Werner might have been noticed near the track possessing some special features, amongst which might be mentioned a new spray carburetter. The pulley on the motor also had been specially made with a view to prevent slip of the belt, transverse slots being made in it. Several Mitchells were in evidence, and very smart they looked with their characteristic American □ðnish. A goodly sprinkling of touring machines had been stored in and around the town, including the Minerva, Quadrant, Excelsior, FN, Phoenix and Chapelle, many riders having toured down on the Sunday from London and districts. From information gathered, there seemed to have been very few

mishaps, and these were only of a tri□ðingnature,suchas contacts out of adjustment and belts breaking. One or two riders also experienced punctures. The progress which the motor bicycle movement is making was well illustrated at Monday's big meeting."

"THE TRIALSORGANISEDBYtheAutomobile Club, and carried out on Dashwood Hill and at Bexhill, demonstrated for the □ðrsttimethespeed and reliability of the motorcycle as compared with the car; and those of us who were, perhaps, wont to regard ourselves as the small fry of the motor world have lately been lifting our heads and have even gone so far as to turn a pitying glance at the man at the wheel. After all, he too has not had such a lot to boast about. He must needs go in for a very high-powered engine if he wants to carry an extra passenger or two at a pace equal to that which we can easily attain; he must suīer all the added worries and troubles of water-cooling for the cylinder of his big-powered engine; his expenditure on petrol and lubricant is about six times that necessaryfor the cycle engine; he must go in for a stable and a mechanic, and moreover, if he gets a breakdown he must get the repair done on the spot, either by commissioning a local engineerto eīect it at an exorbitant charge, or must send a man down to do it. Thereis no slipping oī of the belt or throwing out the clutch and pedalling home for him, poor man!…Asa hill climber the cycle shines as one of the bright stars of the motor □ðrmament. Theway in which it romped up Dashwood Hill at 5mph faster than any motor vehicle (except racing cars of twenty or thirty times its power, whilst only carrying twice the number of passengers)was literally an eye dilator to all thinking sightseers. And at Bexhill there was genuine surprise on the part of the public at the speed shown by the cycles, whilst their freedom from side-slip on a course that was suīiciently sodden, to at least suggestit, was pleasurable to behold,"

"AN ELECTRICMOTORCYCLE,withaccumulatorswhich permit a speed of 100mph, the total weight of the machine only being 70lb., is the latest news an enterprising Continental journal oīers its readers. Thespeed is all right, but the weight?"

"IN SOUTHWALESDOGSappearto dislike motorcycles, at least so it would seem from a case that came before his Honour JudgeG Williams on Saturday last when a claim was heard for £10 15s for damages to a motorcycle, the property of Mr Reginald E Gold, the Mumbles, against Mr DL Owen. Plaintiī told the court that, whilst riding his cycle, defendant's dog rushed after him for about 100 yards barking furiously and snapping at his legs. He had been bitten three times before, though not by this dog, and he therefore kicked out at the animal with the result that he lost his balance—the □ðrsttime,heremarked, for 25 years—and fell forcibly to the ground, injuring not only himself but also the cycle so that it required a new engine. This was not the □ðrst time that this dog had run at him, and since Christmas no less than six dogs had attacked him. Severalwitnesses were called, including Mr Pryce Trow, who repaired the machine. He said that the dog in question had attacked him, and he warned the owner about it, and also complained to the police. Defendant's counsel contended that supposing defendant had been negligent in allowing his dog to be out—which he did not do—yetplaintiī contributed to the accident by kicking at the dog. His Honour: You suggest then that it is negligence for a man to defend himself againstthe attack of a dog. Judgmentwas given for the plaintiī, with costs, for the amount claimed, his Honour remarking that people stuck to their mongrels after warning, like the defendant had received. Counsel for defendant : My surprise is that people go in for motorcycles and bicycles. His Honour advised defendant that the best thing he could do was to throw his dog over the pier head. (Laughter.)"



"**Usefulness vs Art 1:** Bjones scandalised his eminently respectable neighbourhood by razing his □ðowerbedsanderecting a hideous donkey engine and crane in his front garden! Just fancy!! **Usefulnessvs Art 2:** But when the truyly intelligent community saw it was really the most practical way of getting his motor-bicycle into the hall they bore the in□ðictiojnwith resignation. Thisis truly a utilitarian ageand art must be subservienbt to usefulness."

"THE FRENCHMILITARYauthoritieshaveoïicially decided to adopt the leather jacket beloved of motor driversin place of the pelisse."

"DEMESTER'SMOSTRECENTperformanceon the Buïalo (Paris) track was to cover a lap in 12⅖sec, working out at about 56mph."

"PURSUITRACESONMOTORCYCLEShavetakenthe fancy of the Parisian public. Demester and Lamberjack recently competed in a race of that description on the new Buïalo track, the former winning in 5min 43sec. Thelast six laps were ridden almost neck and neck, but in the result Demester, on the outside, managed to get his 'infernal motor-bicycle', as the highly-powered machines are termed in the French press, past that of his competitor."

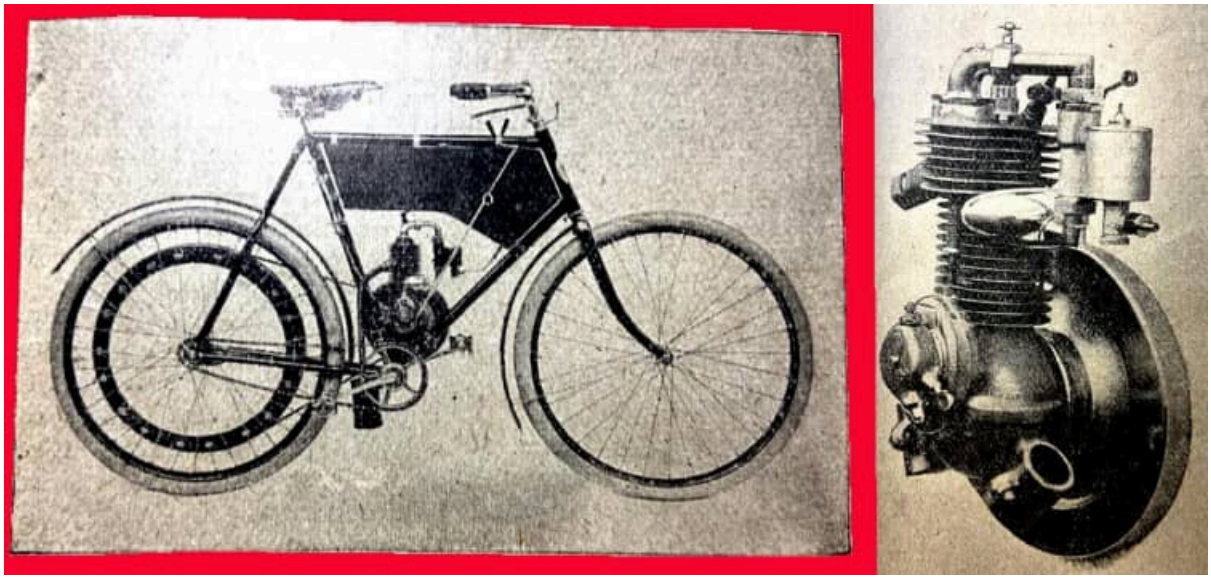
"ACCORDINGTOTHENew York Herald, there is a general uprising of the people against the furious speed maintained by wealthy owners of motorcars in and about the city. Several prominent citizens, or rather their chauïeurs, are out on bail, chargedwith breakingthe law in this connection. Although the owners are members of the Automobile Club of America, that body has declared its hearty sympathy with the police in their eïorts to suppressexcessive speed. On one asphalted avenueexpert motorcyclists have been set.to follow the law breakers."

"OUR MIDLAND REPRESENTATIVEhas,forthelast month or so, been using one of Mills and Fulford's trailing cars behind his Quadrant motor-bicycle. At □ðrstthemembersof the fair sex appear somewhat nervous in a trailer; but with a fairly careful rider in chargethis nervousness quickly wears away…suchapleasurable way of getting about the country should go far to popularise this form of motor cycling…itis only on steep hills that we found it necessaryto assist our engine by pedalling."

“THE MOTOR-BICYCLE IS such a comparatively recent introduction that it is not a matter for surprise that slight improvements are being eīected almost daily…One thing is absolutely certain, writes our representative. Next season most of the leading makers will make a 2hp engine the standard, as the experience of the last few months has shown that the smaller power engine is not strong enough for all-round work, that is with a fairly heavy rider on the machine.”

“THE FABRIQUE NATIONALE CO some years ago achieved a high reputation upon the Continent for the quality and workmanship of their bicycles, and in placing the FN motor-bicycle upon the market they have had in view the fact that a successful motor-bicycle must have the merits of simplicity and a compact and symmetrical appearance. To the cyclist in the ‘transition’ stage the design of their machine will specially appeal. The lines of a standard pattern roadster bicycle are fully retained, and the weight of the whole machine is kept at the minimum, consistent with strength and durability…it will be admitted that there is something pleasing in its general outlines. Now for the component parts of the machine. Let us □ðrst deal with the motor. This of course, works upon. the standard principle of an internal combustion engine, but in the details we note several important departures from the conventional pattern. The feature that shows up most is the outside □ðy-wheel. On he interior of this—and, in fact, as an actual part of it —is the driving pulley, transmitting the power by a ¾in □ðat belt to the large wooden driving rim which is mounted on the rear wheel. The cylinder and top half of the crank case—which, by the way, is remarkably neat—are in one piece. The lower half’ of the case carries the clips which attach the motor rigidly to the main and diagonal tubes of the machine. The motor is □ðxed quite vertical, and the sparking plug comes right in the centre of the combustion chamber…It is claimed that the vibration is greatly lessened by the large □ðy-wheel, which, as a matter of fact, is not as heavy as the combined weight of those used on other systems but the weight is put in the right place, namely, at the rim. The total weight of the motor—which develops 1¼ actual brake horse power—is probably as low as any motor in practical use. The carburetter is of the spray pattern, quite automatic in its action and does not require any adjustment whatever on the road. This is fed from the petrol tank through a small supply pipe, which can be shut oī by a small tap. A □ðoat feed is □ðtted, and one clever device worth noting is the ‘intake’ for the warm air from around the cylinder. The whole arrangement is of quite a small size, and appears to be strongly made. The controlling levers and switch really only consist of two—the switch in the left hand grip, and the advance spark lever. We have also the compression tap—this and the advance lever being seen □ðxed forward of the petrol, tank. The speed is controlled entirely by the spark advance lever, and it is remarkable how sensitive this regulation it,. We should say that the speed could be adjusted from 5-25mph quite easily. The exhaust box is carried well below the bracket so no smell from the exhaust gas reaches the rider, the size and principle of construction being also such that the minimum amount of noise is heard from the exhaust. We had the opportunIty of putting the motor through a few tests, and found found that with everything in good adjustment a single turn of the □ðywheel would start up the motor, the carburetter acting quite regularly in supplying the gas. Running the motor up to a speed of 1,800 per minute no mis□ðring was apparent, showing the eīiciency of contact breaker and electrical equipment generally. Next we made a test for the horse power, and this came out exactly 1.4 the speed being 1,600rpm. As the motor was running quite free, vibration was, of course,

considerable, but this would quite disappear with the resistance of the belt in an actual run. The □ðnishofthemachine is good all round, the tanks being □ðnishedoīin bronze, and the bicycle parts in the usual black enamel and nickel."



"General view of the FN bicycle." (Right)"General view showing carburetter."

"A LITTLETIMEAGOONEofthe staī was chatting with Bud Snyder, who is probably the only man on the stage who does tricks on a motor-bicycle, a Singer, by the way. When at the Palace ful□ðllinganengagement, he did the following on the □ðatstage,goingat 12mph: Hand stand from handlebars, head stand from saddle—adiīicult feat—goingthrough the frame, and his usual side to side pedal jumps. Thesewere all done whilst the machine was in motion."

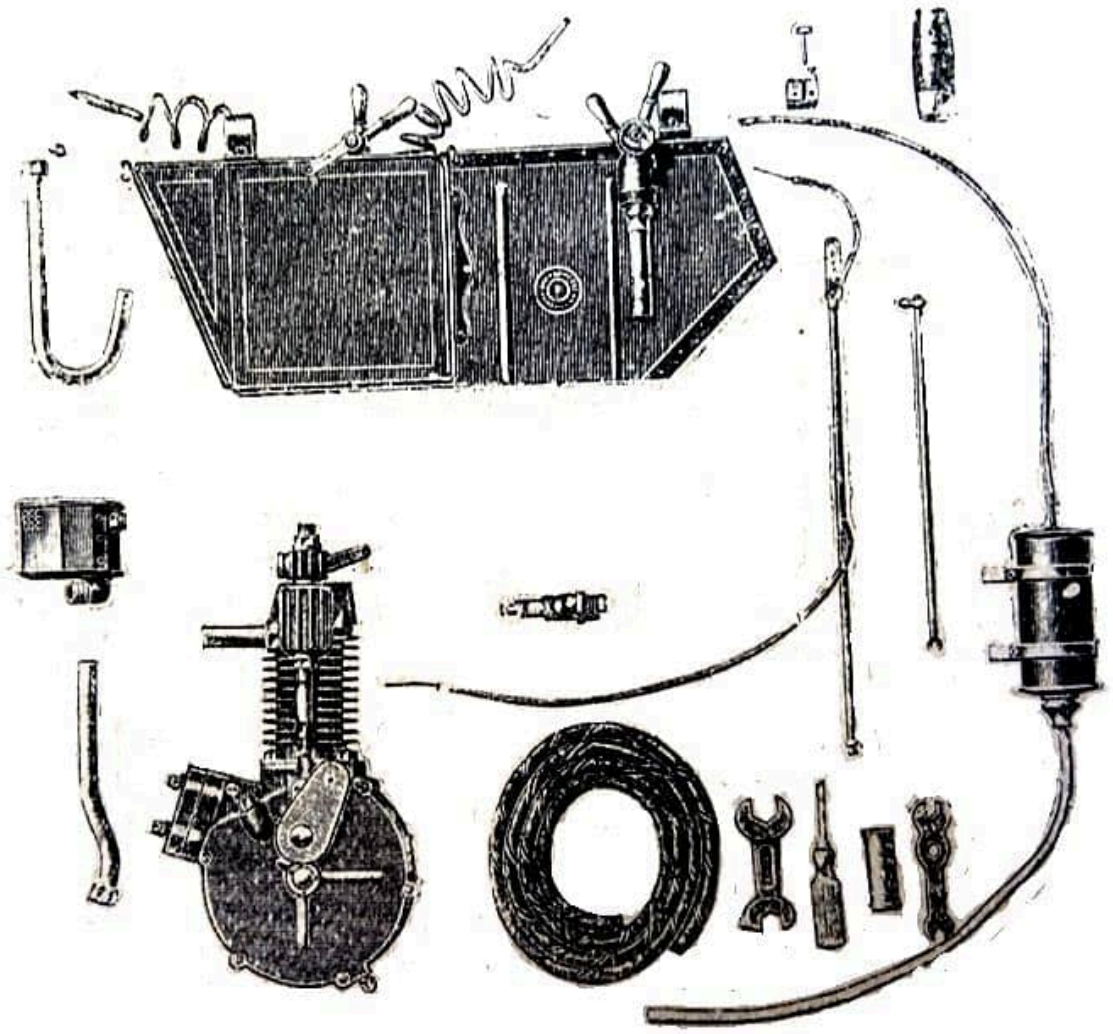
"IT WOULDBEINTERESTINGifthe Motor Cycling Club, or some other organisation, would promote during the season a competition which would demonstrate how quickly the motor-bicycle could be stopped. Incidentally, data would be provided which would help the motorcyclist to judge which would be the best mode of pulling up in cases of emergency. Such a competition would be of much service, we are sure, to motorcyclists generally."

"DO NOTFORGETTOCARRYasmallparaīin oil can. A few drops to loosen the piston pins in starting savestemper, time and trouble. A few drops in the free-wheel clutch at the end of a day's run is bene□ðcial,butdonot forget to oil up again before starting. A few drops on the screw of your .adjustable wrench will facilitate tinkering."

"HERBERTSHARPEWASSUMMONEDlastweek for furiously driving a motor-bicycle between Hor□ðeldandFiltonon the 11th inst. Evidence was given that defendant's speed was quite 25mph, and he was □ðned20sandcosts. TheChairman, in giving the decision of the Court, is reported to have said, 'You gentlemen who ride motor-bicycles think you can □ðyaboutthe country as you please.'"

"THE GERMANAUTOMOBILISTSheldtheir □ðrstcongressat Magdeburg, where motor owners from all parts of the country met to discuss the common weal."

"THE YOUNGESTLADYMOTORISThasbeendiscovered—is it necessary to state, in America? She is 13 years of age, has taken part in four races and won three, and has ridden a mile in 2min. 22secs."



“We illustrate a complete set of parts for the □ðttingupofa 1½hp motor-bicycle. Theseinclude the motor, which clamps on to the down tube of the bicycle, the petrol tank and carburetter, coil and switches, exhaustbox, connecting pipes, levers, wires, belt, pulley rim (not shown), tools, etc. Theweight of the complete machine comes out at about 85lb. Themotor runs at a maximum speed of 1,800 per minute, and anything between 6-30mph can be attained. Theset is made by the Péconet Company, of Paris.

“ACCORDINGTOA RECENTREPORT,motorcyclesare forbidden in Munich, and motorcars are limited to a speed of 7½miles an hour!”

“HIS MAJESTYHASDECIDEDthatno motors of any kind can be allowed on Ascot Heath during the races, for fear of accidents.”

“FRANCEIS SUFFERINGfroman over-production of wine and beetroots, and as both those commodities contain a large proportion of alcohol, french scientists are urgingthe substitution.of alcohol for petrol in all automatic vehicles. Themotor of the future will doubtless, therefore, carry a supply of ‘vin ordinaire’ and a few bushels of beets, and manufacture its own motive power ‘en beet-route’, so to speak. Thescheme bristles with possibilities. A well-grown beet-root is a □ðnethingtothrow at an inquisitive dog or at a too oīicious policeman. Tokill Roberton his beat with your beet would be a trip of ‘retribeetrootive’ justice. Ha Ha! Failing this, a quart bottle of Chateau St Vinaigremight be resorted to with

success. One eminently desirable result would accrue from the universal adoption of this proposal—the reputation of the cyclometer would be rehabilitated. 'In vino veritas'."

"WHAT WILL MOST LIKELY be the only motor-car race allowed this year by the French Government took place last week under the name of 'Concours de l'Alcohol', and what is more, it was organised by the Government itself, the idea being to encourage the use of alcohol instead of petroleum. It must be understood that the □ðrst product is a French one while petroleum can only be obtained from foreign countries."

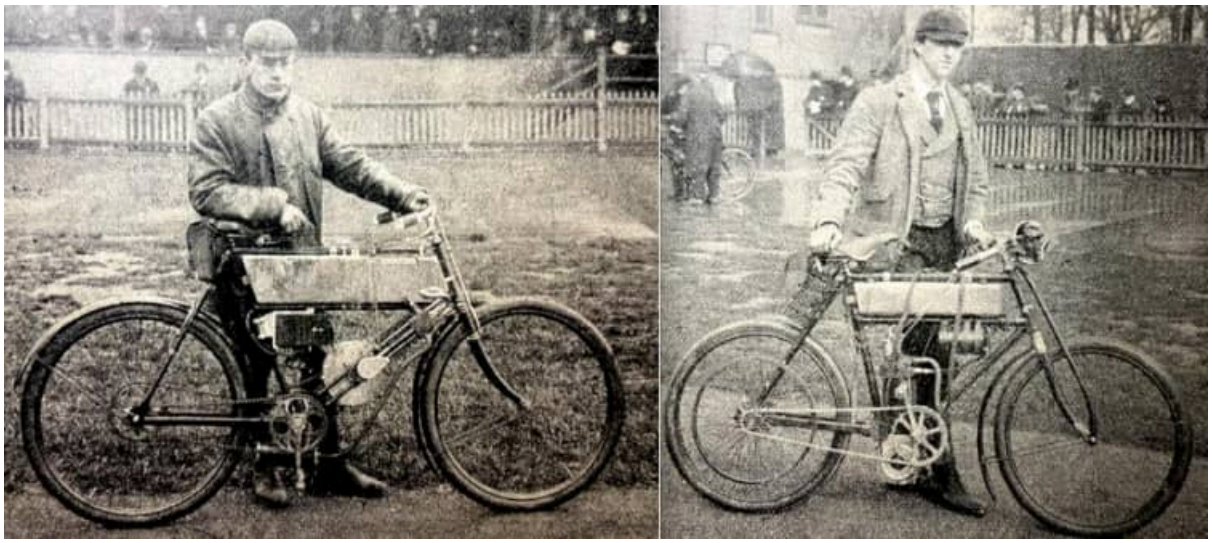
"Bardeaux, winner, motor cycle class in the French alcohol trials."

"TWO WERNER MOTOR-BICYCLES took part in the recent alcohol trials, □ðnishing □ðrstand second in their class. This was a good test for the machines, for the weather was very bad and the roads greasy when the event was run oī."

"BERTYATES, WHOSE NAME has been so often bracketed a winner with the Humber chain-driven motor-bicycle, has had a lengthy experience. His □ðrst introduction to a motor-bicycle was in 1895. This was a machine invented by Pennington, and his impressions at that time were

anything but favourable towards the new sport. His second was a motorcycle designed by HJ Lawson. On this he won the □ðrstamateurmotorcycle race, he believes, ever run in England, that is to say, when each competitor held a licence under the NCU. Since then, he has ridden the Werner, Minerva, Derby, Chapelle, Mitchell and several others, his latest being, of course, the Humber. He is very pleased with its powers, and doubts if a machine of the same horse power can equal it, and very few with a greater horse power to beat it. Yates had hard luck in the Crystal Palace trials, but his performances so far this season have shown that rider and machine are in the □ðrstclass."

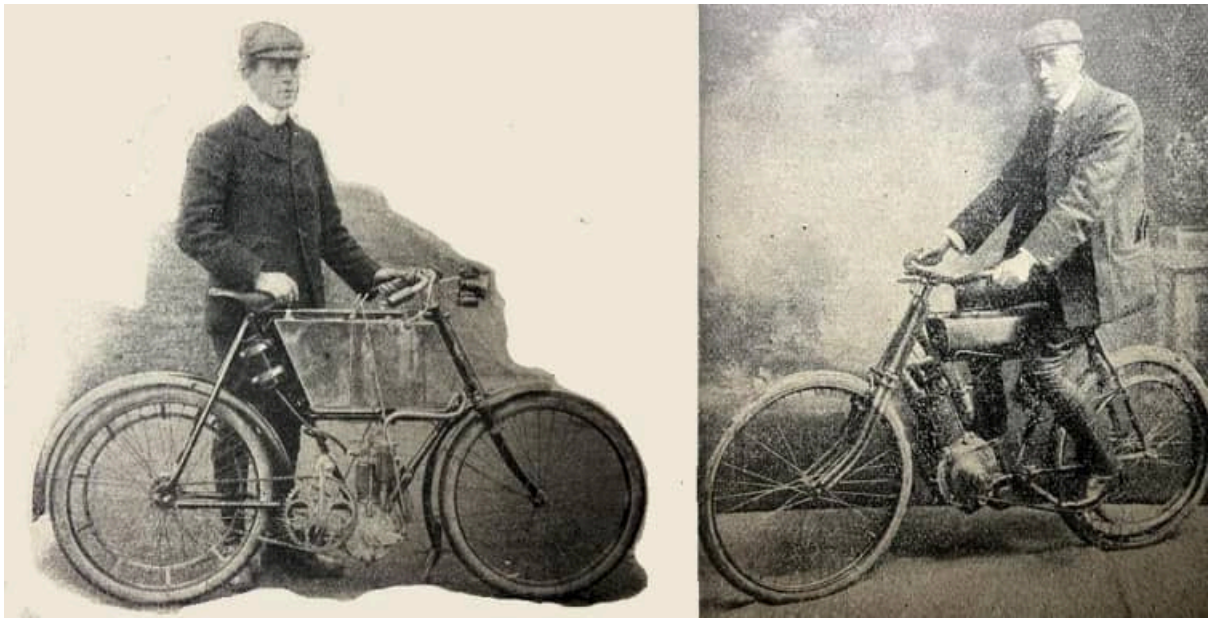
"SJWATSON, WHO HAS □ðguredprettyprominently in the motor-cycling world recently, started his actual connection with motorcycles last year. He made his debut on a 2½hp Chapelle at the Palace track, but a cropper at one of the corners during Show week lost him the chance of riding on that machine in the races at the end of the week. He has not made himself conspicuous in racing yet, but appears to be slowly drawn that way. He has ideas of his own in regard to motorcycle construction which may shortly take shape."



Yates with his Humber; Watson with his Chapelle.

"H MARTIN, ON HIS 2¾HP Excelsior, has loomed largely in all racing events this season, and his list of successes must be pretty considerable. Olley, who rode in the Anerley '25' motor-paced race on Saturday week, and covered 31 miles 858 yards on an ordinary bicycle, was paced throughout by Martin. Martin afterwards beat the □ðvemilesamateurmotor-cycle record (standing start) in 7min 45⅕sec, which is world's record, FW Chase establishing a world's record for professionals during the same afternoon. It must be acknowledged that Martin's time of 7min 45⅕sec is excellent for an ordinary commercial motor-bicycle from a standing start, and should stand for some little time."

"STANLEY NORFOLK, THE OLD Catfordian racing man, who is a well-known □ðgureonthesouth roads, has gone into the motor-cycle line, and makes an excellent machine. We might add that the 'Norfolk' is □ðttedwitha2¾hp MMC engine, has a spray carburetter, strong duplex head, two powerful rim brakes, is belt driven, and will climb bills with a gradient of 1 in 6 without the use of pedals, and will attain a speed of 40 miles on the level. The home of the 'Norfolk' is at 115, High Road, Lee, SE."



Martin with his Excelsior; Norfolk with his Norfolk.

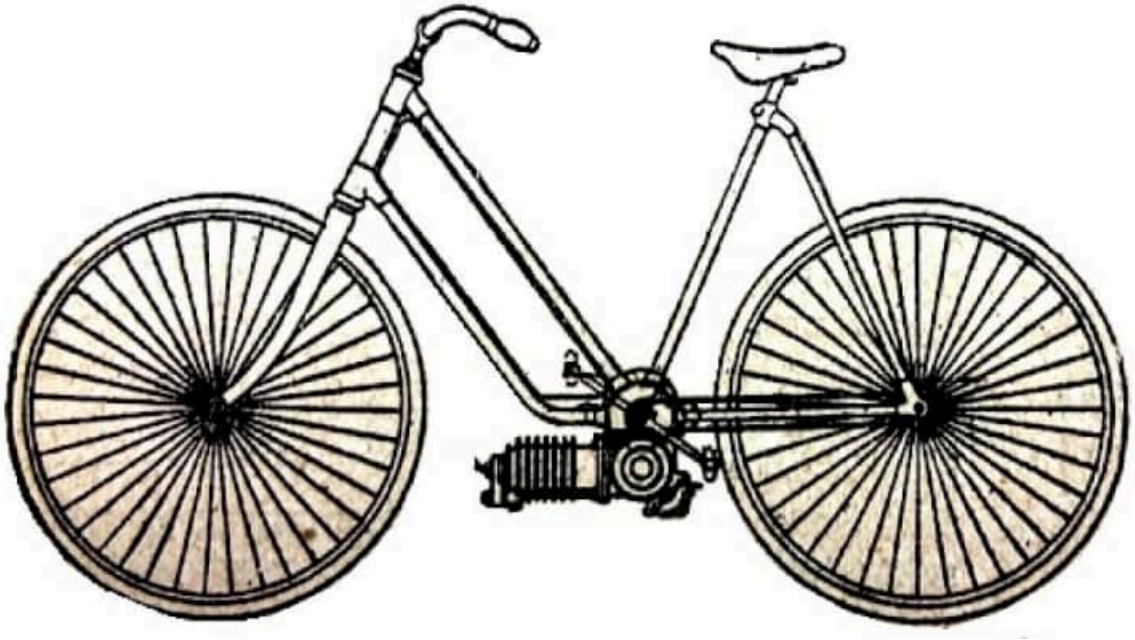
"THERE IS A CLAUSE in the conditions of insurance of every □ðreoīice that if anything be done on or upon the premises to which the insurance refers, by which the risk is increased, without notice to and the sanction of the company, the insurance ceases to attach…It will thus be inferred that the companies prefer to take up a position which will induce motor cyclists to keep their machines in separate buildings, rather than □ðxaspecialrate, or frame conditions. for what they consider a very important risk…It is imperative to keep motor-bicycles in a shed or outhouse unless the approval of the company is obtained to keep them indoors. At the same time, we are aware that some motor cyclists may be unable to accommodate their machines out of doors. In cases of this sort, doubtless an agreement might be made upon the conditions of running the petrol out of the tanks and performing the □ðllingoperationoutof doors."

"THE MOTORCYCLING CLUB ARE now carrying out runs each week to favoured spots north and south of the Thames. A successful run was carried out the other week to Dunstable, extended to Hockcliīe. On Sunday last the venue was Guildford, and next Sunday the members will 'mote' to Maidstone, meeting at Lee Green at 10.30am."

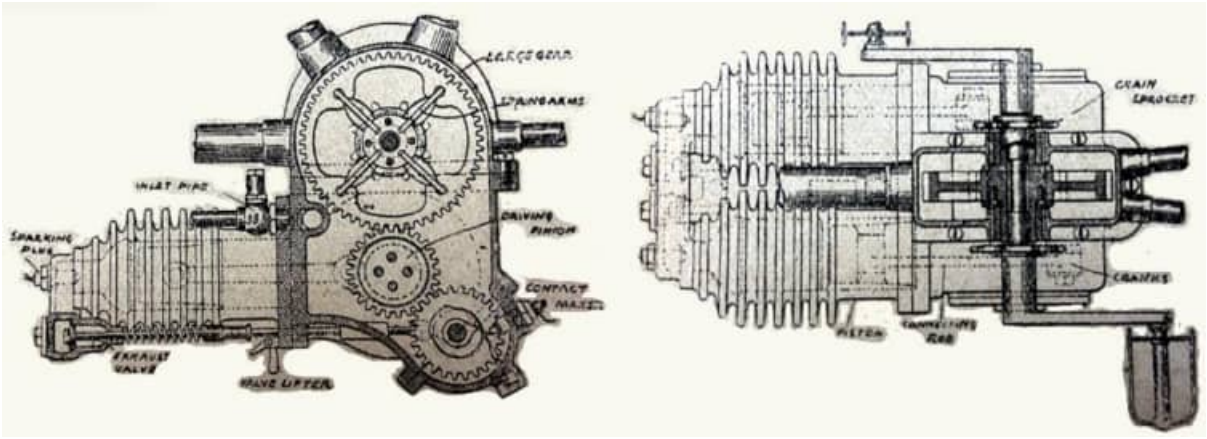
"A MEMBER OF OUR STAFF recently had an opportunity of taking a few runs on a Royal En□ðeld. He speaks well of the ease with which the motor can be controlled by means of the exhaust valve lifter. For simplicity and uniformity of action the En□ðeldcarburetterwouldtake a lot of beating. As regards the power of the motor, this appears to be equal to any task one could reasonably submit a motor-bicycle to. In fact, he □ðndsthatsomeextremelystiī hills could be taken at a fair speed provided a smart stroke or two was given to the pedals now and again. On the level and upon undulating ground the speed could be kept remarkably constant. and anything between 6-20mph attained by simply regulating the exhaust lifter. The long belt seems to give a most elastic drive, and the steering—at any rate, upon dry roads—is as free as that of an ordinary bicycle. The only point that called for special comment was the fact that there appeared to be rather more noise made than by some other makes of motor-bicycles, but this did not necessarily seem to he due to the exhaust, which is provided with an eīicient silencer. As a piece of engineering work the motor —and, in fact, the whole machine—is a splendid example of the class of work that should be put into a motor bicycle to ensure absolute freedom from trouble, and long life for all the wearing parts."

“Montague Holbein, riding an Ivel motor-bicycle on the North Road near Biggleswade. Holbein attempts to swim across the Channel in July, for which event he is now in strict training.” [Monty never made it across the Channel but did set a 50-miles non-stop record in the Thames; he was also a world-class bicycle racer.]

“The Strickland motor-bicycle is designed on quite original lines. It possesses the special features of spur wheel driving or transmission and the employment of twin cylinders for the motor. The position of the motor also is an unusual one…it is □ðxed below the bottom bracket in quite a horizontal position, and so arranged as to be readily detachable. The position of the petrol tank and coil and battery compartment will be seen to be in the fore part of the frame. The connecting rod drives a pinion which meshes into the large gear…This is provided with elastic arms or spokes to take up the shock of the power stroke. On the axle of this wheel are mounted the chain sprockets which transmit the power through two chains to the rear wheel. Oī the pinion is driven the cam gear for the exhaust valve and contact breaker. The position of the exhaust valve and sparking plugs will also be noticed…The cranks are set at an angle of 180° apart, mounted and the small pinion wheel is mounted between them…The whole of the mechanism runs in an oil-tight case, and special provision is made for easy access to all the parts. Further information concerning this patent can be obtained from Messrs Marillier and Robelet, 42, Boulevard Bonne-Nouvelle, Paris.”



The Strickland was an early twin.

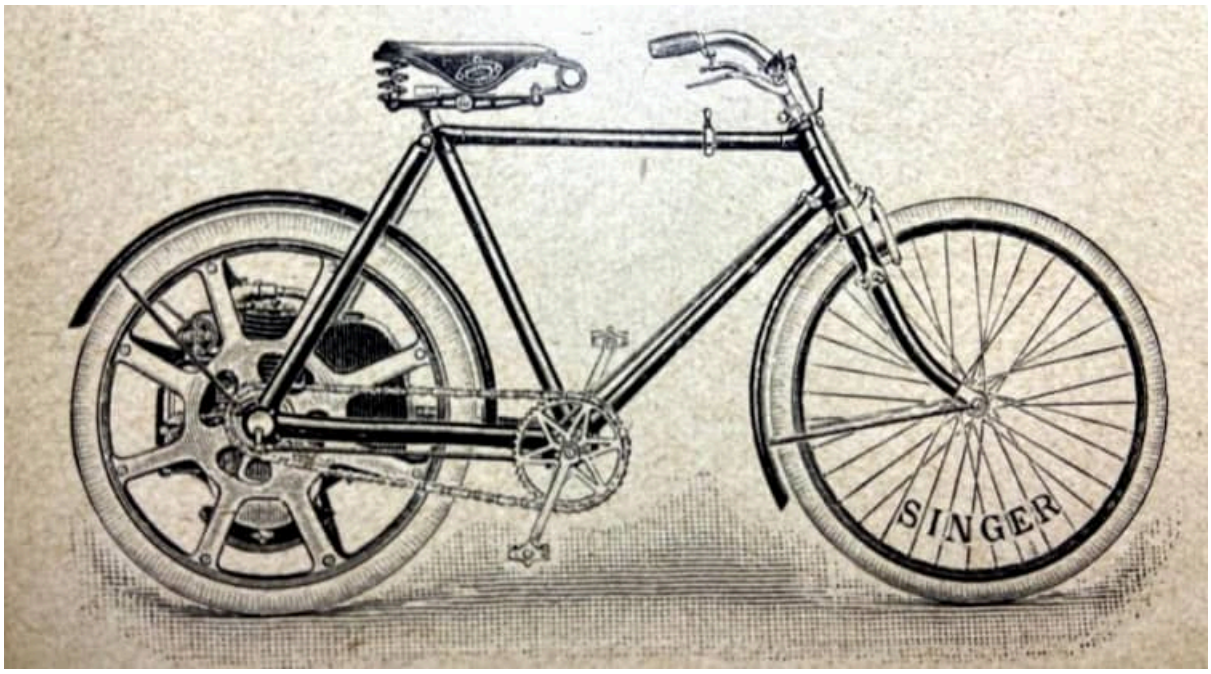


"Interior of Strickland gear box (Right) Plan of motor."

THE SINGER MOTOR WHEEL.

"THE 'SINGER' MOTOR IS CLAIMED to be the □ðrst engine of purely British design and manufacture to be applied to bicycles, and sold in any quantities. The Singer Company still retains this design, as the result two years of practical testing. Various minor improvements have been eīected during that time, and the makers consider that their system oīers distinct advantages. If they did not believe so, we presume they would put their engine (which is by itself a very □ðne piece of work) in some other other position on their various forms of cycles, instead of within the wheel. Instead we believe that their engineers have tried many positions for the motor, before adopting the novel and compact arrangement which gives it such a marked individuality. The Singer motor has many good points in its favour. The following special points are claimed for the system, and justi□ðed by severe road tests, extending over many thousands of miles: (1) Engine protected from damage and cooled by revolving wheel. (2) Magneto ignition, with positive interrupter gear. (3) Vertical engine and high-class roller bearings. (4) Combined

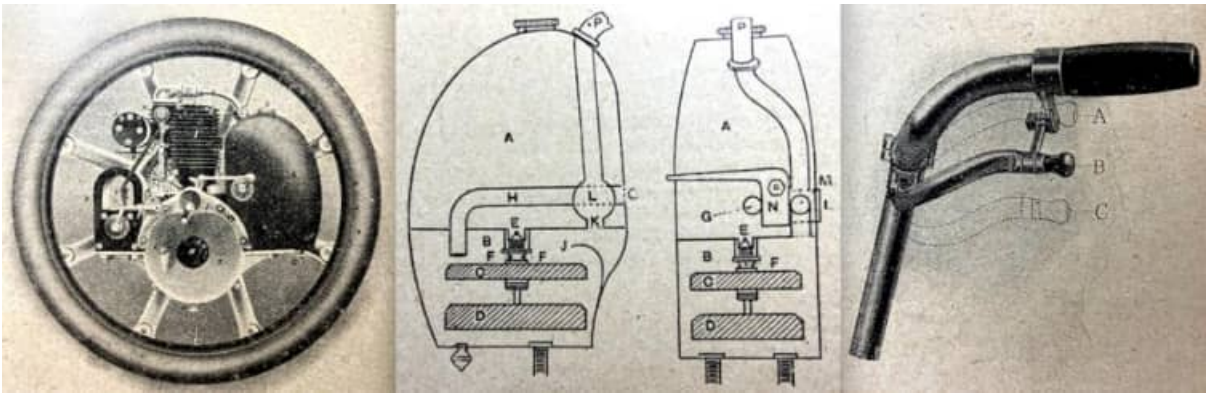
spray and surface carburation, giving economical and consistent results. (5) Absence of batteries, accumulators, coils, tremblers, sparking plugs and wiring. (6) Positive driving, giving great power at hills. (7) Simplicity of control and management. (8) Ease of detachment and carriage of complete motor engine for repairing purposes…Therecanbe no doubt that the engine and all its appurtenances are well protected from almost any damage which could result from a fall. This is testi□ðedtoby many of the □ðrm'sagents,whoemploy the machines for trials and hiring-out purposes. Under these conditions, they are subjected to treatment for which very few motors are designed. When the engine is properly oiled, overheating is an unknown thing, an advantageaccruing from the continual current of air which is whirled about the cylinder by the revolving wheel sides—the whole engine, of course, being stationary. With regard to the magneto ignition, this is a remarkable instance of its absolutely successful employment. Messrs Singerattribute this to the adoption of a special interrupter gear of their own design, which has been tested to give eīective sparking at anything between 200-2,500rpm. Theslight adjustment of the contacts, required about once in a thousand miles, is a matter of comparative simplicity. Owing to the absence of batteries, coils, wiring, plugs, tremblers, etc., the chances of electrical troubles are practically abolished, and those of breakdown thereby reduced to a minimum…Thecarburetter is in reality very simple. The petrol is sprayed from the upper tank on to a □ðxedcorkblockin the lower chamber, whilst a shallow level of petrol is kept at the bottom. The level is regulated by the lower cork and □ðoatvalve.Thissmall amount of petrol is splashed by



"The Singermotor-bicycle."

road vibration over both corks, thereby assisting the spray in vaporisation. That the combination gives great economy was proved at the recent Crystal Palace trials, when the Singershowed less petrol consumption than any of its competitors. In the same trials it will be remembered that the Singerwas the only machine that accomplished the complete hill test without pedal assistance, thereby pointing to the advantagesof direct driving…Simplicityof control may well be claimed for this, the □ðrstone-levermachine.All necessary regulation, except the mixture, is actuated by a lever on the handle. Thereis therefore no necessity to remove the hand from the handle grips, and the whole attention can be given to the steering, and the speed regulated

under any conditions. Carburation is far less sensitive than the average, and consequently the engine practically is governed by the throttle and exhaust valve lifter. Both these appliances are in their turn fully controlled by the single lever, the upward pull raising the exhaust, and the downward twist gradually opening the throttle to the carburetter. Yet another feature is the ease with which the motor wheel, containing the engine and all its □ðttings, can be detached…All details have been carefully worked out to allow maintenance such as cleaning the valves or adjusting the ignition to be performed without dismantling the wheel. It must be remembered that every part of the machines with the exception of the magneto is manufactured in the works of the Singer Cycle Co, at Coventry, and the workmanship is quite up to the reputation which the cycles of that well-known □ðrm have enjoyed for so many years. We are informed that…the introduction of the motor wheel to tandem tricycles and tri-voiturettes for carrying two riders is proving a great success. The Singer motors are really made for touring and general all-round road work. The speed element is not specially catered for, the makers considering that reliability and power at hills are the most essential points…At the same time, a speed of well over 20mph can easily be attained. The frames of all the machines are specially constructed to stand the extra strain put upon them by the driving of the powerful engines, and in this respect they diīer from other pattern of motorcycles which are designed on conventional lines."



L-R: "The Singer motor wheel. The Singer carburetter consists of tank (A) for petrol; in the lower compartment is □ðxed the carburetter proper, this consists of two □ðat corks, the upper one (C) being □ðxed and onto which the petrol is sprayed through the holes (F F) in the sprayer; the lower cork (D) regulates the level of petrol by controlling valve (E); the road vibration splashes petrol over the corks, thus assisting vaporisation. The control lever."

A WORD TO THE WISE: "Motorists generally and cyclists will do well to be careful when riding in the Isle of Wight, as the police there are, we learn, to be supplied with stop watches." [Motor Cycling, June 11th, 1902.]

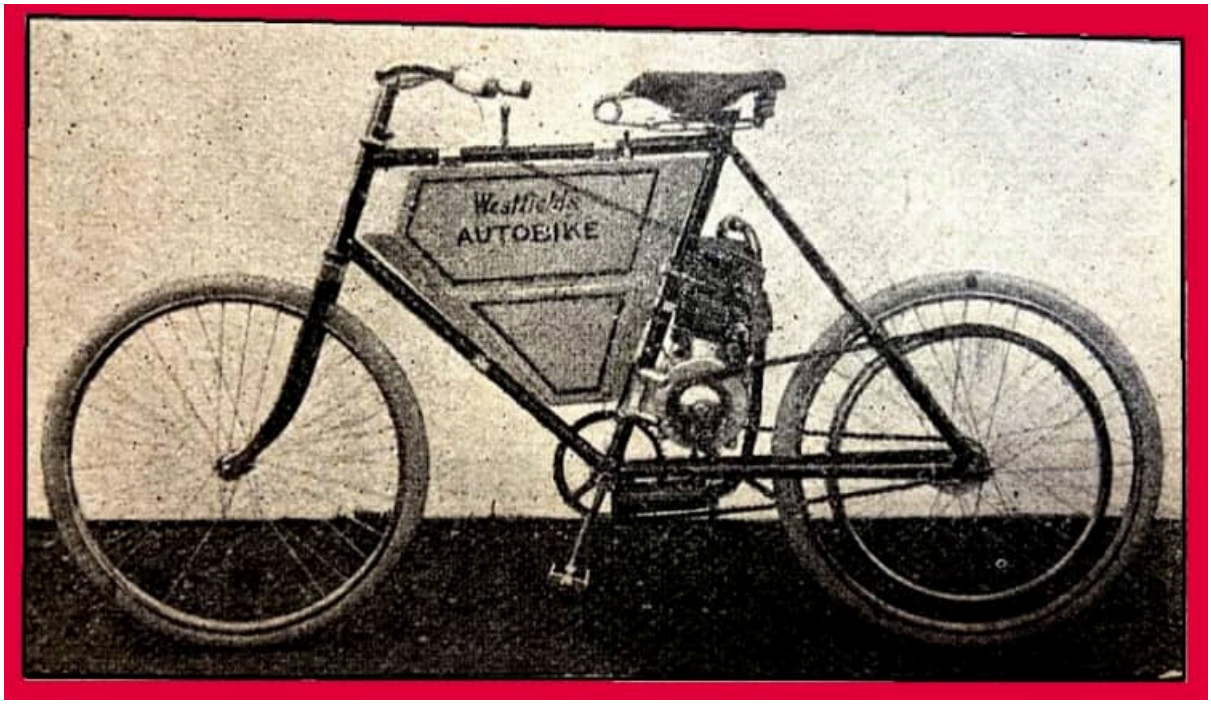
"MOTOR BICYCLES ARE becoming very popular in the Staīord district."

"GERMAN-MADE MOTOR CYCLES do not appear to be in great favour in the Fatherland, very few being on show in the recent motor show."

"THE FIRM OF ISHIKAWA and Co, of Yokohama, have taken over the Japanese agency for the Mitchell motor-bicycle. WC Vaughan, the American trick rider, is now over there 'popularising' the machine and incidentally astonishing the natives in the diīerent parts of the empire."

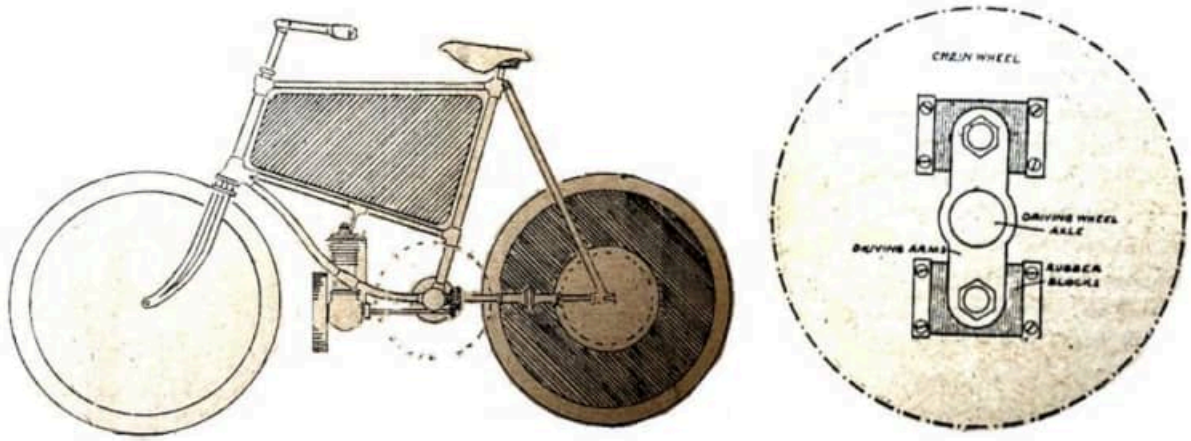
"THE WESTFIELD AUTOBIKE. A motor-bicycle of neat and eītective design is the Autobike, made by the West□ðeld Co, 'The Rising Sun' Cycle and Motor Works, 330, Brockley Road, London, SE. The motor □ðtted is the well-tried Kelecom, 66mm bore, 74mm stroke [253cc] giving 1¾hp at

1,500rpm and 2hp at I,750. It is □ðttedtoaspecially built bicycle frame, which retains the pleasing lines of the diamond frame. It will be observed that the motor is mounted in a vertical position just behind the diagonal tube and drives on to the rear wheel pulley by means of a strong belt. Aother noticeable feature is that the combustion head and cylinder are in one piece, thus doing away with joints, lugs, nuts, and studs. The valves are large in diameter, and are turned up from a piece of nickel steel. The control of the machine is managed entirely by a single lever, this combining an exhaust valve lifter and current breaker. An automatic spray carburetter is □ðtted, and the petrol tank carries petrol for 120 miles."



West□ðeldAutobike:"Aneat and eīective design."

"WE RECENTLYNOTICEDarathergoodidea to overcome the diīiculty sometimes experienced with a chain drive, namely, the absorbing of the 'shock' of the power impulse of the motor and avoiding the risk of a damaged chain. The arrangement we saw was □ðttedtoarather high powered experimental machine, and instead of the impulse of the motor being absorbed by a spring clutch at the motor sprocket, a very simple and eīicient device was attached to the large sprocket. The interior of the wheel has been cut away and a gun-metal casting made to grip two large blocks of indiarubber had been bolted to it. To the axle of the rear wheel of the machine, a gun- metal driving arm had been keyed. At the ends round bolts were attached, and these' passed through holes in the rubber blocks, and thus a buīer was interposed between the sprocket and driving-wheel." [This is one of the earliest mentions of the 'cush drives' which are still an integral feature of motor cycle drivelines—Ed.]



"Spring gear wheel for chain drive." Yes folks, it's a cushdrive.

THE LIGHT SIDE.

When a magazine labels its 'humour' you can bet it ain't going to be funny. But I had to suīer through it, so it seems fair that you should read it too—and trust me, the bits I left out were worse.

"DUST IS BY NO MEANS a desideratum when motoring, but it is, perhaps, a lesser evil than mud, which is what the urban and suburban authorities substitute for it by means of their water-carts. The remedy is certainly worse than the disease, and more dangerous to boot. Motorists will therefore welcome the announcement that abroad they are beginning to doubt the value of the water cure, and are experimenting with other dust layers–olive oil, naphtha petroleum and coal tar, all of which are said to have produced good results, laying the dust more eīectually, and leaving a cleaner, harder surface on the road. Some day the wise men of this country may realise that their own existing method is not the best ; and meanwhile some inventive idiot might experiment with a petrol-sprinkling attachment for motorcycles, so that when the time is ripe for reform, every man may be his own dust layer. With less dust, and a more eīicient system of treating it, we shall indeed be approaching the millennium of road travelling!"

"WHAT IS THE DIFFERENCE between a cowboy and a chauīeur? One drives the steer, the other steers the drive."

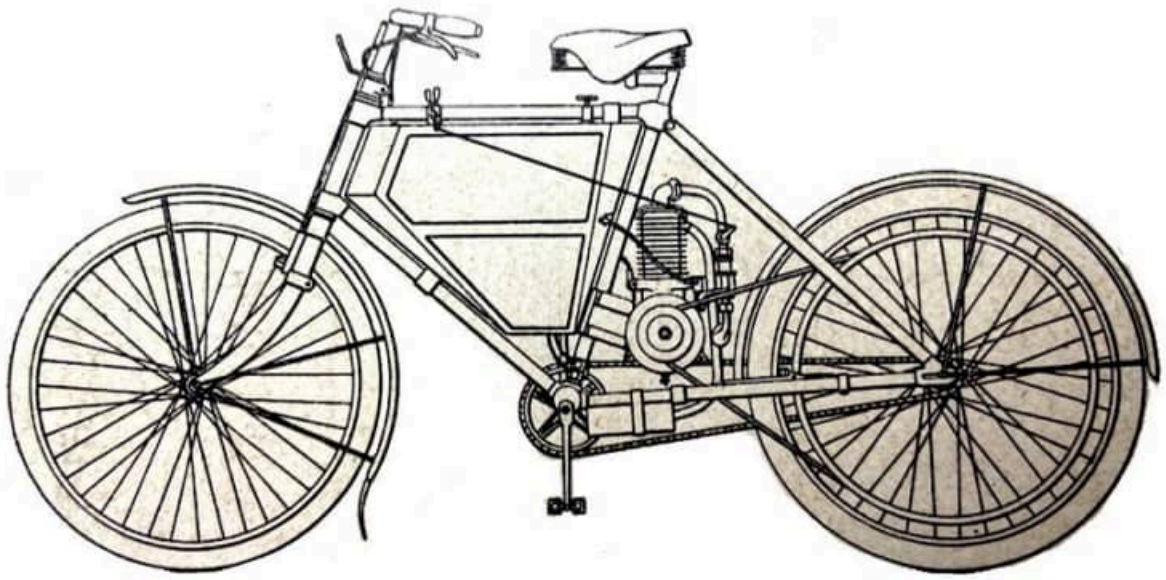
'AUTOMOHILISM IS HONOURED by the more than honorary patronage of the King. The hand that rocks the cradle used to rule the world; but it is now the hand that rules the world (or the greater part of it) which rocks the car."

"SEIKELDREIFFER (in the motorcar): 'Vy you use der pedals efery oder mile, Ikey ?' IKEY (on the motorcycle): 'So I not vaste mein petrol, fader.' SEIKELDREIFFER (anxiously): 'Take care, mein leedle son, you don'd wear oudt your shoes.'"

Ok, settle down…let's get back to motor-bicycles.

THE ORMONDE MOTOR-BICYCLE.

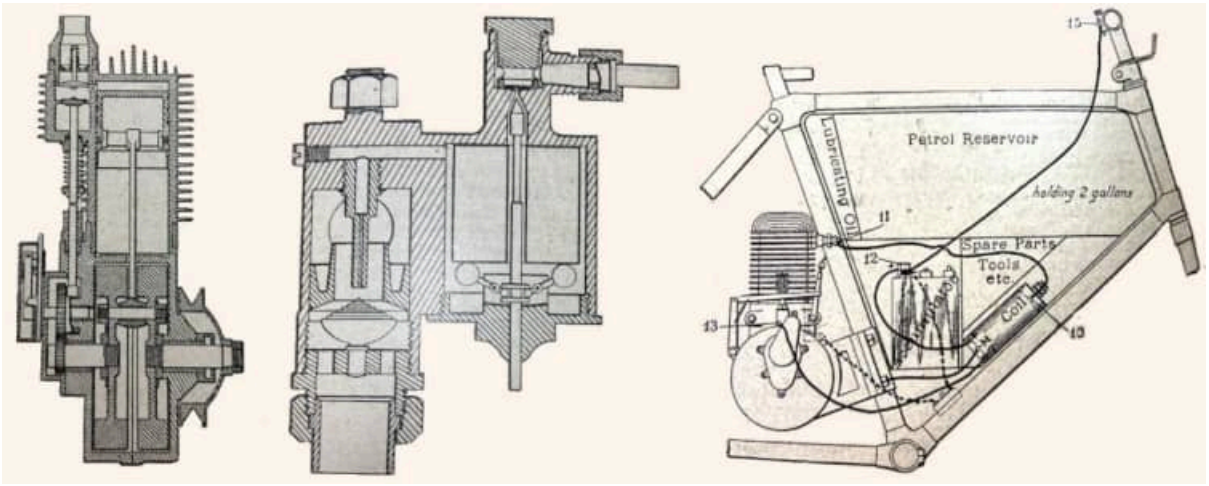
THEMOTOR-BICYCLEwhichisdescribed herewith is the production of the Ormonde Motor Company, Wells Street, Oxford Street, W, a □ðrmwhichhasspared neither time nor expense in placing one of the most up-to-date bicycles before the motoring public. It is at once elegant and eīicient. Theengineis placed vertically behind the seat tube. Thisposition was adopted after a very careful series of experiments, extending over 2,500 miles, with the motor placed in various positions. It ensures perfect lubrication, equal cooling of the engine, absence of vibration, and, moreover, renders every part easily get-at-able, while being practically free from mud and dust. Themotor is the Kelcom, for which Messrsthe Ormonde Co are sole agents for the United Kingdomand the Colonies. It has a bore of 68mm with a stroke of 76mm [276cc] and develops 1¾hp at 1,450rpm. At the present time it is so well known as to need very little description at our hands. Amongstthe engine'smany special points to which we would call attention is the formation of the cylinder, which with the combustion head forms one casting, thus obviating the joint found in other patterns. [This became ubiquitous until detachable cylinder heads



"General view of Ormonde, showing position of engine."

returned some 30 years later—Ed.]Besidesthis, it ensures a minimum, amount of metal, with a maximum amount of cooling surface, overheating being practically impossible. Large valves, deep radiating ribs, very substantial bearings (designed to run many thousands of miles without renewal or adjustment) are all sound features well worthy of consideration. Thetank is exceptionally well made and ingeniously designed. Space is provided for about two gallons of petrol, also 1½pints of lubricating oil (suīicient for a non-stop run of about 200 miles) in the upper portion, and the accumulator, coil, etc, beneath. Thefront and rear of the tank is chamfered oī to reduce the air resistance and to allow a clear run of air on to the engine. Amongstthe many little improved details which add to the comfort of the rider may be mentioned a miniature tap. Thisservesas a tell-tale to the petrol tank, while the petrol is available for such purposes as cleaning the platinum joints of the commutator, sparking plug,

etc. The carburetter is a particularly good □ðoatfeedspraytype, and is another example of □ðne workmanship. We hear excellent reports of the consistently good results obtained from it. The supply of hot air for the mixing chamber is led from the exhaust pipe through □ðnegauze. It requires no regulating, summer or winter, the mixture remaining perfect over good or bad roads and through even severe atmospheric changes. The combination exhaust lifter and switch is particularly neat, and as most readers will know, is controlled by a Bowden wire, but with a twist handle instead of the usual lever, on the left side of the handle bar. Half a turn of the handle lifts the exhaust lever suīiciently to break the circuit at the contact upon the crank chamber at the end of the lower arm forming an extension of the lever. A further twist of the handle lifts the exhaust valve; this method does away with the necessity of taking the wiring up to and through the handlebar, which is so often the cause of annoyance in the form of a hidden short circuit. Between the interruption of the current and the lifting of the valve is suīicient movement to allow the engine to be used as a brake prior to relieving the compression. This re□ðnement will be fully appreciated in traīic, as by it one can practically free his engine, enabling the machine to be pedalled without undue exertion. On the right side of the bar is the usual Bowden lever working the back rim



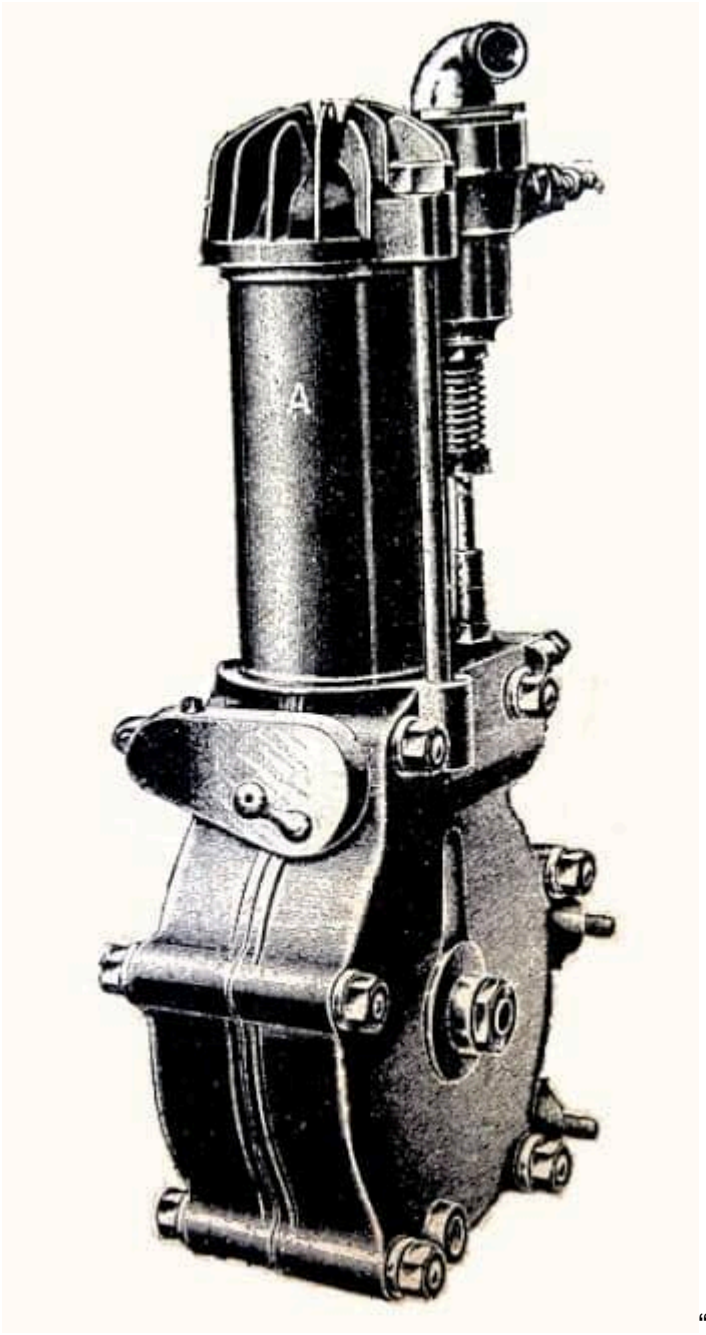
L-R: "Vertical section of Kelecom motor. The carburetter. Tank and contents."

brake, while an emergency brake is also □ðttedactingon the front rim. Only two levers are □ðtted, and these are placed in a very convenient position on the top tube. The right hand one advances or retards the sparking device, that on the left controls a very compact and well-made throttle. This regulates the volume of mixture passing to the engine, enabling petrol to be economised whilst the maximum quantity is always available for top speed, steep gradients, heavy roads, and head winds. Lubrication…is fully met by a somewhat unique device in the form of a simple automatic lubricator…The oil, after leaving the tank, passes through a cock and is conducted to the lubricator, the engine being fed through the small valve which is operated by the vacuum caused in the crank chamber upon each up-stroke of the piston. The valve can be regulated…to pass any given quantity of oil, and, when once properly adjusted, needs no further attention from the rider. Failing a successful form of chain-drive, which, at present necessitates complications and increased cost, the belt is given preference. As the drive upon this particular design of motor, bicycle is rather shorter than usual, this point has received very careful study by the manufacturers, It will be noticed that the engine pulley is proportionately large, thus ensuring the same amount of grip for the belt that a smaller pulley with a much longer drive would have, but the makers strongly recommend the use of a special laminated raw-hide belt of V-section, which is practically proof against stretch or break. The workmanship and □ðnish

throughout is of the very highest grade the frame is specially designed with due regard to the strains it will be called upon to bear, and is made in two sizes—22in with 26in wheels, and 24in with 28in wheels. It is enamelled black with silver lines; the tank □ðnish-edin bronze-silver with black lines, and the rims and usual parts heavily plated. Very wide mudguards are □ðtted, with the front one extending well forward, which ensures cleanliness in all weathers. Special 2in Dunlop-Bartlett motor tyres are □ðtted. We understand the makers can supply the trade and amateur mechanics with complete engine sets, frame, □ðttings, etc, from stock, together with working drawings for same. A booklet is published fully illustrating and describing the foregoing in detail, and can be had from the Ormonde Company."

"OUR MIDLAND MAN HAD the pleasure of riding alongside—and very often considerably behind—an Ormonde motor-bicycle one day recently from Coventry to Birmingham. Mr Arthur Goodwin manipulated the taps, and considering that he modestly draws the scale at over 14 stones, the fact of the motor taking all the hills without faltering in the least speaks well for the power and reliability of the 1¾hp Kelecom motor. The Ormonde machine is well arranged, and is beyond question a very speedy motor. "

"THE FAMOUS DE DION FIRM have created a considerable sensation in the motor world by the advent of their latest production, namely, the De Dion motor-bicycle of 1¼hp. As might have been expected from a □ðrm of such repute, there are some strikingly original features in the design of the motor. Inside □ðywheels are adopted, as in their standard patterns, but the cam and ignition gear is quite diīerent to anything yet produced. The contact breaker and cam shaft are mounted at right angles to the crank shaft, and thus the over-all dimensions of the crank case are kept within 4in width, thus enabling the- standard width of tread in the bicycle to be retained. The right-angle shaft is driven from the edge of one of the □ðywheels; this having two threads cut in it, and meshing into a pinion on to the contact breaker shaft. The speed ratios are equivalent to those obtained by the 2 to I gear in the old pattern. The cylinder is devoid of radiating □ðanges, but these are retained on the combustion head. The cylinder is fastened to the crank case by two bolts passing through lugs on the head. The inlet and exhaust valves are mounted one over the other, and a special device is □ðtted for lifting the exhaust for starting, The compression tap is now dispensed with. The bore-of the cylinder is 62mm and the piston 70mm stroke. The speed can be increased from 400-4,000rpm, and from this it must be assumed that the parts must be most perfectly balanced. The normal speed, however, is from 1,500-2,500. The length over all is 14¾ inches, and the weight 22lb."



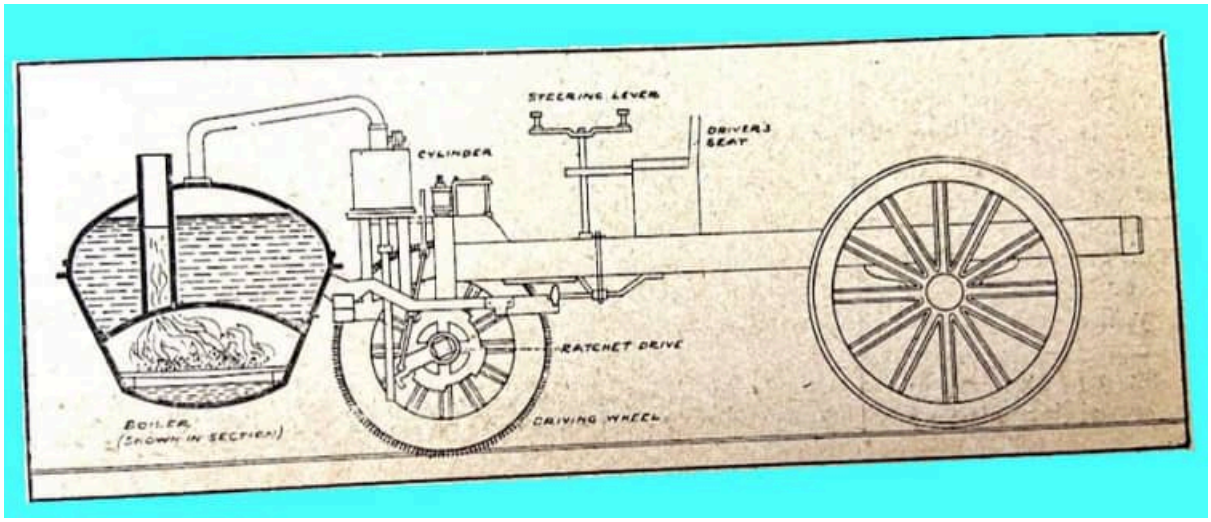
“The new De Dion engine.”

“MOTORCYCLEUNIONOF IRELAND.TheMCU, at its last meeting, □ðnallysettled upon its rules and regulations, and the objects of the Union are as follows: To ensure a fair and equitable administration of justice as regardsthe rights of motor cyclists as such. Toestablish, revise,or alter the rules regulating the sport and pastime of motor cycling. Tocontrol and arrangefor race meetings, matches, competitions or time trials for motor cyclists. To endeavourby such means as may seem advisable to bring about the more eīicient maintenance of Irish roads. To protect the interests of motor cyclists and motor cycling generally. TheUnion have decided to hold an informal hill climb shortly for members, probably on the Glenamuck road. It may be truly stated that this young body is in a very‘live’ condition.”

“TIP TOPREVENTbatteryterminals corroding. When you have made your connections quite clean and secure, just smear a small amount of vaseline around the terminals. Thisbeing quite acid-proof prevents the acid eating into the brass and spoiling the connection.”

“THE RHENISHWESTPHALIANIndustrialExhibition, about which so many interesting reports have appeared in the daily press, includes a number of German-made motor-cycles—rather a neglected feature in German construction. Thecycle manufacturers overthe water care much more for motorcars, and seem to regard the motorcycle as a toy. Thisobservation is substantiated by the results as shown here and at the Berlin motor exhibition. Lack of space prevents dealing fully with this matter, but it may be stated as absolutely correct that many Germans have not yet seen a modern motorcycle, and should they become acquainted with the proper article they are sure to become buyers. Cudel & Co, of Aachen, show an old-fashioned motor-tricycle, on which only the nickelling can be recommended. TheAachener Stahlwaarenfabrik has several cycle motors on view, one of which develops. 1¾hp, has a small bore, and weighs only 24lb. Thesmallness of the motor is an advantage, especially as it has suīicient room for shaft bearings. Severalcycles carry their motors overthe front wheel, but the majority haveadopted the English style of placing the motor in close proximity-to the bottom bracket. The Bowden and the Crabbe brakes are in universal use, and what is over here called a Minerva motor can be found on nearly every other machine. Werner and De Dion motors are rare, and none can be seen at this show. As soon as English manufacturers have created a market for motorcycles and found the proper type, our German competitors are sure to copy and make them a little cheaper, because no experimenting is required; but if our manufacturers take proper precautions this should be prevented.”

“IT WILLNO DOUBTSEEMincredible that a practical steam-driven motorcar was invented in the far away days of the 18th century, yet the statement is perfectly true, and the sceptical ones may see the car for themselves if they happen to be at any time in Paris, and pay a visit to the Conservatoire des Arts and Metiers. Therewill be found in a state of excellent preservation the road locomotive made by Nicholas Cugnot in 1771.” [You’ll □ðnditinthe timeline of course, but the original appeared in 1769with the four-seater referred to here taking to la route in 1770.]



“A motor car 130 years old.” […andthese 1902 stories are are almost as old. Thought provoking, innit?—Ed]

“MOTORCYCLINGAND THECORONATION. TheCoronation holidays will not aīect the publication of either Motor Cycling or Cycling. Theonly change necessitated is that small sales ads for both papers must reach us on Wednesdayin Coronation week to be in time for the following week’s issues.”

“THE ARIELCO ARENOW turning out an excellently □ðnishedmotor-bicycle, made on the standard Minerva lines, but there are one or two modi□ðcations,noticeablyin the carburetter arrangement, silencer and position of the control levers.”

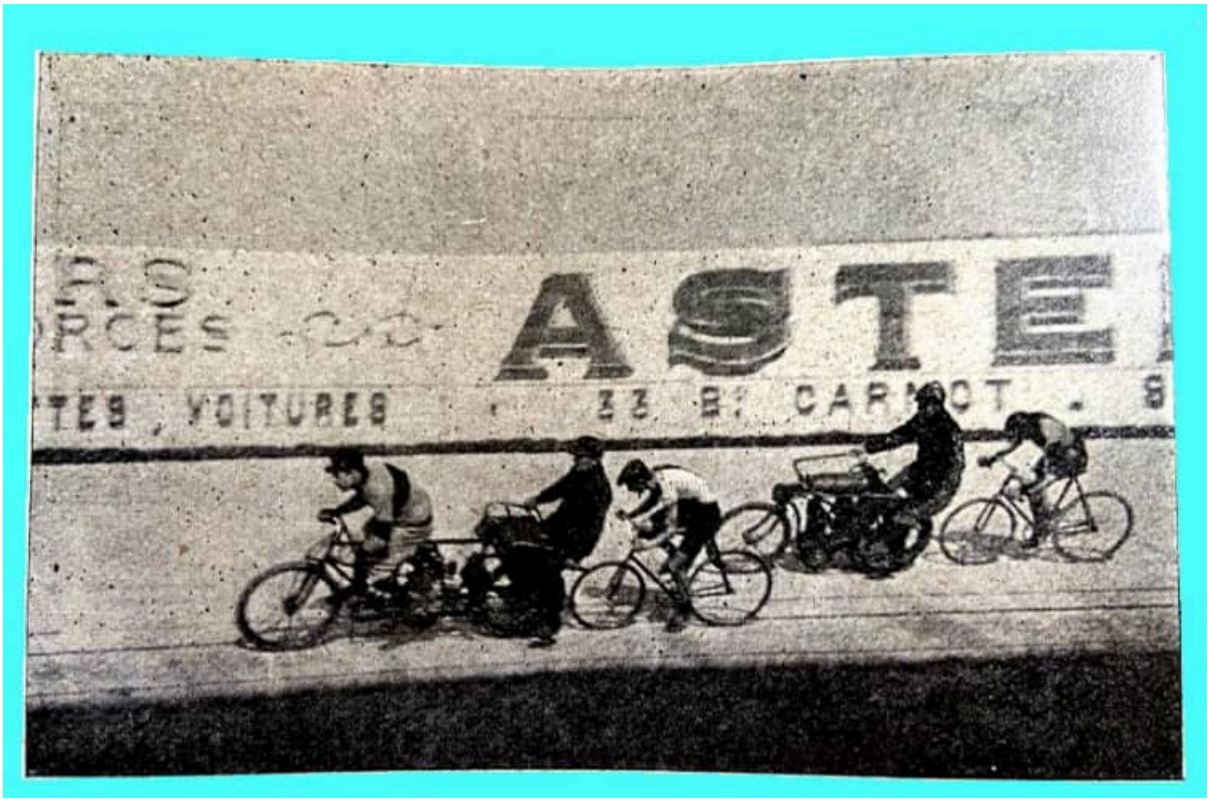
“THE FIRSTSTATUTORYMEETINGoftheMotor Cycling Club was held on Monday week a headquarters, TheWhite Horse, Long Acre, with E Perman in the Chair. An interesting summary, prospective and retrospective, was given by the chairman, who pointed out several successful runs bad been carried out, and a big programme had been arranged for the season. The membership list was steadily increasing, it was satisfactory to note…Bytheway, the club has selected a neat black, white, and silver greyfor their colours.”

“We illustrate the design of badgewhich has been specially made for the Motor Cycling Club. TheDe Dion type of engine has been worked out in a very neat manner, and looks most eīective. Thebadge can now be obtained by members from the hon secretary.”

“WE WEREDISCUSSINGEYEPROTECTORSintheoīice the other day, and the chief drew attention to the fact that his dislikle gogglesextendednot only to the matter of appearance, but to some curious eīect which they seemed to haveupon the senseof hearing. Thegeneral opinion was that this so-called eīect was nothing more than fancy, but, as I had ‘fancied’ the same thing when wearing eye guards of any kind, I have lately indulged in a series of experiments, and have convinced myself that when the guards are larger than a pair of pincenez

the sense of hearing is undoubtedly aīected, and the conclusion has been come to that the eīect is caused by the currents of air which strike the goggles and are de□ðected, rushing by the ears and so partially excluding other sounds. When the motor has been travelling fast against a head wind, to which the body has been bent, I have had a positive roar and rattle against each ear, just as if a piece of sheet iron were being violently vibrated. When wearing an eye guard of any kind, I □ðnd myself straining in order to ascertain by listening how the engine is working, and as one gains most valuable assistance in driving from listening to the working of the engine, the use of gogglesis a distinct disadvantage. But I must confess that I have not given the hearing that extended practice which would decide whether or not it could become accustomed to the use of the guards."

"PETERSEN, AWELL-KNOWN motor-bicycle pacer, lost control of his machine during a recent race near Berlin and fell to the ground. He is still in hospital and for days it was very doubtful if he would live. The motorcycle had done splendid service, and no fault could be discovered in connection with it. It is not improbable that the terri□ðcheat caused Petersen to faint."



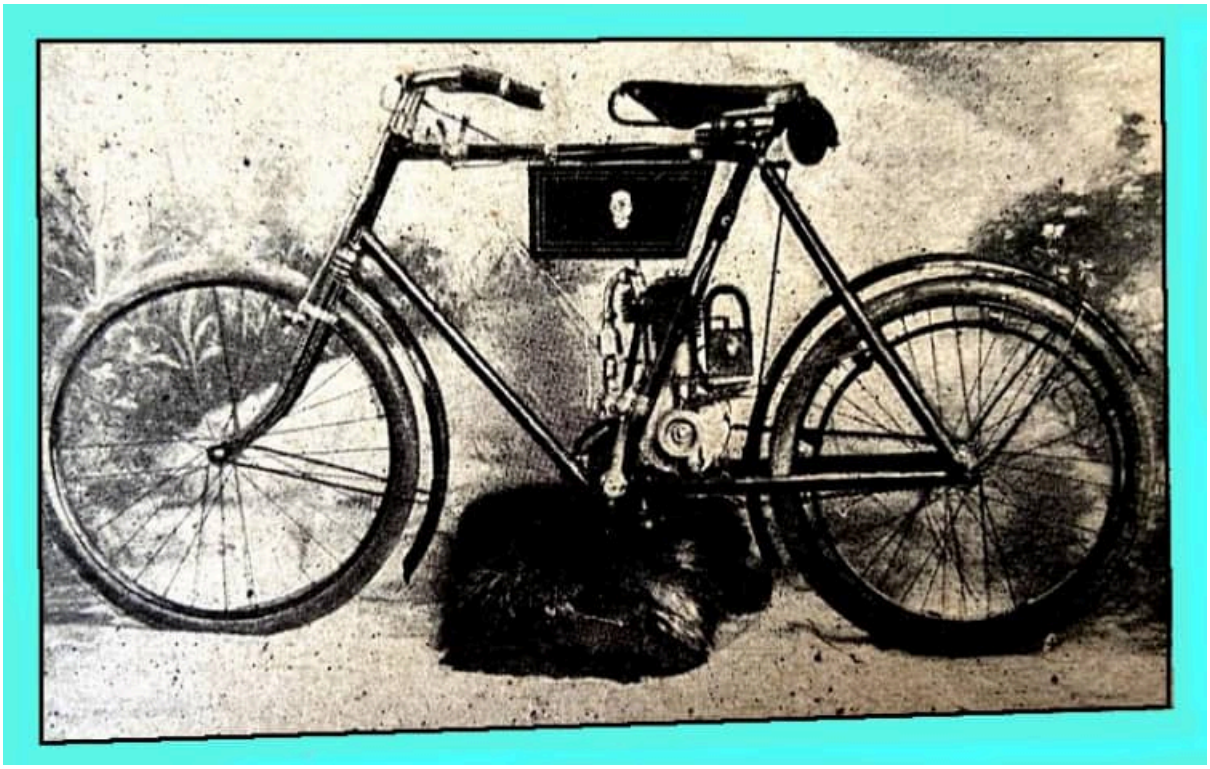
"Motor pacing in France. This snap shot shows Robl (front) and Linton, the two most remarkable followers of pace, racing behind their pacing motors at the Buīalo Track in Paris."

"THE ADVENT OF THE MOTOR-BICYCLE has opened up quite a new □ðeld for the cycling tourist. Numerous as are the charms of touring on the pedal-driven machine…what a far vaster □ðeld.is opened up now that greater distances can be covered with the minimum amount of work—if any at all. Hilly districts with their varied scenery, the charms of which have formerly been denied to a large class of the cycling tourist owing to the necessary hard work which inclines to make a toil of pleasure, are now brought within reach of all by the advent of the motor. bicycle. Far longer and more interesting tours can be mapped out than was formerly possible with the ordinary cycle, and thus time is greatly saved. The question of luggage and touring equipment becomes no longer a problem of having to reduce everything to an absolute minimum of weight

and size to avoid overloading the machine and exhausting its rider. With the powerful little motor doing all the work, an addition 30 pounds or so of personal luggage makes no practical diīerence whatever to the running. In fact, it is only a question of storage capacity that has to be considered, as machines vary somewhat in this respect. Thus considered, motorcycle touring scores well above ordinary cycle touring on the question of personal comfort and convenience alone. On almost all machines it is possible to clip a Turner's carrier on to the rear stays just over the back mudguard. These are now made in diīerent sizes with bags to suit them, and quite a large amount of personal requisites can be stowed away therein. When □ðttingthebag see that all the straps are made quite secure, as everything has to be very □ðrmly□ðxedtostand the vibration of a motor-bicycle. The nature and quantity of the personal requirements to be taken will, of course, depend to a large extent on the length and duration of the tour, and can best be determined by the rider himself. But it is always advisable to include such items as a hair brush, soap and towel, toothbrush, small mirror, waterproof cape, not forgetting a few spare studs and buttons, as these things have a knack of getting lost when touring. Although just for short runs the usual cycling costume may be adopted, some modi□ðcations are necessary for longish runs and tours. The lack of exercise and the greater speed attained, the rider consequently feels the cold more, necessitating the donning of stouter clothing. The regulation motor-cycling costume is held by some riders to consist of a leather jacket and cap, riding breeches, leather leggings and boots, but this speci□ðcation is subject to much variation according to the rider's fancy, but the prospective tourist will be well advised to provide himself with a stout jacket and leggings and some warmer underclothing than usual. "

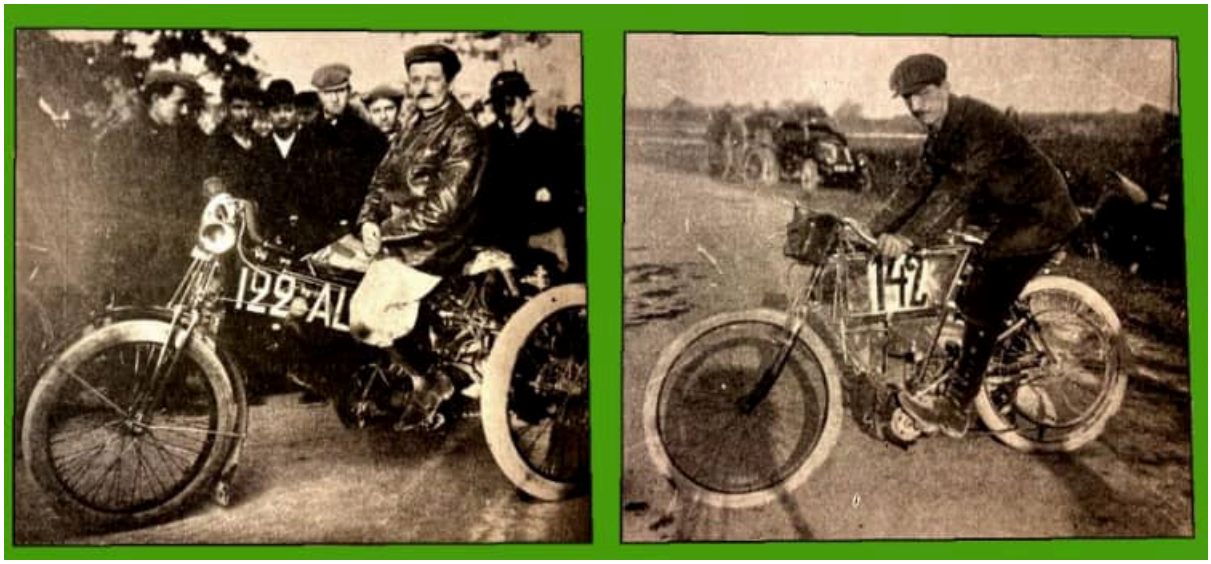
"AN EXCELLENTIDEAwasshown to me by the well-known tailors, Hoare and Sons, of High Holborn, this week. It consists of a double waistcoat buttoning very high in the neck, with a turn-down collar to give it a □ðnish. The materialis wool throughout. To give the necessary warmth needed by the motor-cyclist, a special interlining is used which, whilst not being so close in texture as leather, is just as wind resisting. The arms are protected by a lined sleeve with closely □ðttingwind-cuīs. The makers claim the t it is as good as an over-coat, giving all the warmth necessary without sacri□ðcing comfort or health. The idea appeals to me."

"THE'NEW BOWDON' MOTORCYCLE. Craggand Sons, Altrincham, Cheshire, have just brought out a new design for a motor-cycle frame, specially built to accommodate the motor. The motor is a Simms 2hp; □ðxedverticallyand-clampedsecurely to the bottom tube which is joined under the bottom bracket. The latter is of special design, six inches wide. The motor is □ðttedbetween two tubes (D section) taken up from .the outside ends of bracket to a fork lug 16½in from such bracket, which also takes the seat pillar tube. The motor is held at the top by a connection from the fork lug referred to, and the crank chamber is well secured from behind by two upright arms from a strong steel bridge, strengthening the back forks. This bridge also acts as the mudguard and exhaust-box holder. The motor is thus held perfectly rigid. The back hub is also of special pattern, seven inches wide, which allows plenty of room for a one inch □ðatbelt. The adjusting of the belt is from the back, and the chain by an eccentric bracket. There are only two levers to manipulate, ie, the exhaust valve lifter and the advance spark lever. A good front rim brake is □ðtted,which,usedin conjunction with the exhaust valve lifter, enables the cycle to be pulled up in a few yards. The ignition is magneto-electric, doing away entirely with coil and accumulator. "



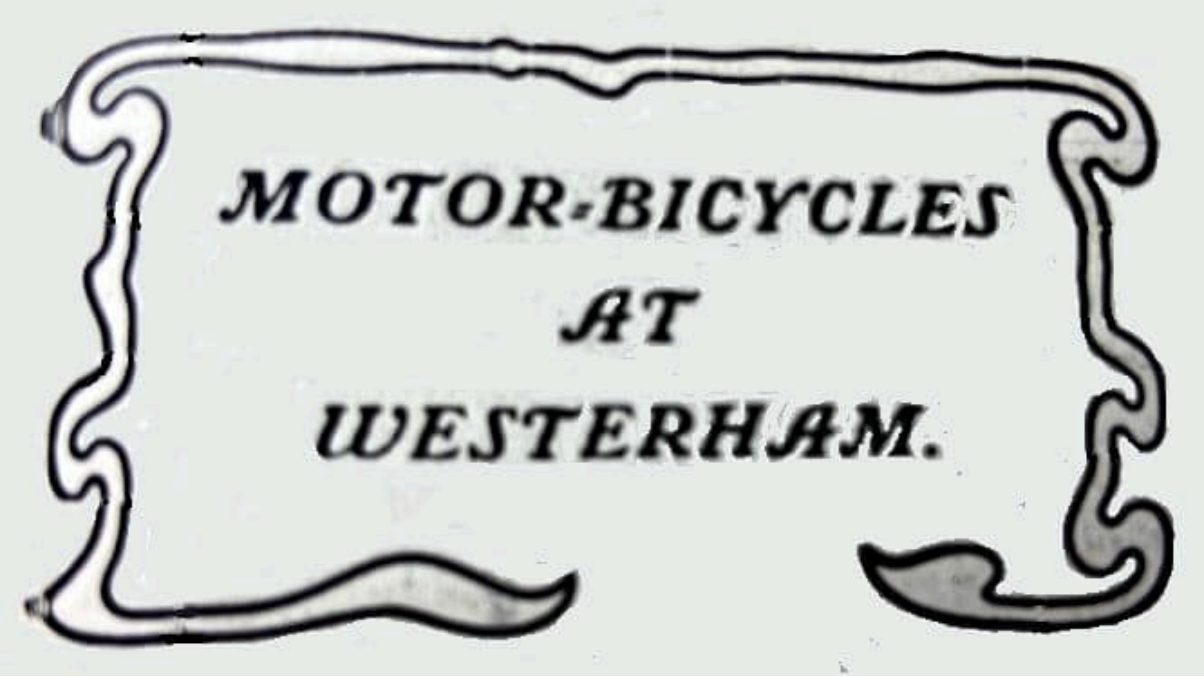
The New Bowdon was powered by a 2hp Simms engine.

THE RACE FROM PARIS TO VIENNA was the biggest motoring event of the year; the 137 starters included luminaries such as Baron de Rothschild and CS Rolls (who had a near death injury when his car left the road and hit a tree). British drivers and cars did very well, winning the Gordon Bennett Trophy for the □ðrst time. It was run in four daily stages: Paris-Belfort, Belfort-Bregenz, Bregenz-Salzburg and Salzburg-Vienna. Motor Cycling reported: "Little has been written and little thought by the writers in the general press about the performances of the motor-bicycles in the great race, and yet they have performed exceedingly well. To the Werner has fallen the honour of being □ðrst and second to arrive at Vienna, both machines going through well from start to □ðnish…Bucquet was the □ðrst motor-bicycle to arrive at Belfort, the □ðrst control, having got over that part of the journey (253 miles) at the excellent average pace of 31mph. Bucquet eventually arrived □ðrst of the motor-bicycles at Vienna in the splendid time of 25hr 35min 8sec, and Labitte on a Werner came through in 27hr 42min 12sec. Reiger was third (riding a Laurin-Klement, known in England as the Hewitson) in 31hr 5min 29sec. The performances of the three motor-bicycles are all the more noteworthy when it is remembered that they were, in every sense of the term, ordinary motor-bicycles. Both the Werners had motors of 2¼hp, and were □ðtted with Michelin tyres. That Bucquet on one of these wonderful little vehicles should actually beat the times of many of the racing cars is in itself a remarkable performance, proving as it does that the motor-bicycle is no toy, but a fast and reliable motor vehicle under adverse as well as favourable conditions. Imagine for a moment what the contest just ended means. Roads of varying quality, good in parts, execrable in others, ill-deserving the name of 'road' elsewhere; hill climbing beyond anything we can dream of at home, over the snowy Swiss heights; ever changing atmospherical conditions—in short a hundred obstacles to be overcome; and yet all the time over those thousand kilometres the little engine on the bicycle pulsating regularly and ever doing its work beside, and in



Osmont on his potent De Dion racing trike and Bucquet on the New Pattern Werner were among the small band of motor cyclists who let the Paris-Viennacar drivers know that motor-bicycles were no longer toys.

some cases ahead of, the leviathan cars with their high powered engines striving to outpace it. And in the end the little bicycle is there, a pigmy among the giants; it has got right through level with many of its giant rivals and in front of not a few. One should really □ðndtimeinone's ecstatic contemplation of the speed of the racers for a generous thought to the motor-bicycle. We □ðnd on reference that Bucquet on the Werner got into Vienna well ahead of the following heavy cars: Panhard and two Serpollets; the following light cars: Delahaye, Clement, Eisenach, DeDietrich' and the following voiturettes: Corre, G Richards. Surely a fact well worthy of special notice…Greatlyto the surprise of all at Vienna, motor-cycles (tricycles and bicycles) made ah excellent showing. Not only did Osmont on his 8hp De Dion tricycle, weighing 4cwt, get through the whole of that trying journey, but three motor-bicyclists reached Vienna safe and sound. Forty-third in the matter of time, Osmont arrived at Vienna as much as four hours ahead of some of the cars. He traversed the 870 miles which separated Vienna from Paris in the prescribed four days, the 675 miles over which racing was permitted being covered in 24hr 26min 16sec, which averages27½mph throughout. Over the rough roads in the Tyrol the pace was necessarily slow, but the long climbs and the stiī rises (some of them had a gradient of 1 in 5) were all safely negotiated. Thesame may be said of the three motorbicycles. Bucquet, on his dainty Werner, looked almost fresh on dismounting at Florisdorf. His machine weighed just inside 100lb avoirdupois, and the, engine was reputed to be 2¼hp. His time was 25hr 35min 12sec. Labitte, on a precisely similar machine, secured second place in the bicycle class, his time being 27hr 42min 12sec. Reiger, on the Laurin-Klement, was third in this class in 31hr 5min 29sec.



“LASTYEAR,ONTHEOCCASIONof the □ðfteenthannualopen hill-climb promoted by the Catford CC, a time test for motorcycles was included and an entry of □ðveriderswasobtained. But this part of the programme was doomed to be a complete □ðzzle,forweonlysaw a couple of the entrants at the ‘weighing-in’ station, and but one—Tessier—essayedtheclimb. He had alreadytaken a couple of unoīicial runs up the hill, but, as is frequently the case, the run under oīicial eyesand againstoīicial clocks was early nipped in the bud owing to some minor trouble. But matters havemoved somewhat in connection with the single-track motorcycle, and the announcement of the repetition of the experiment at this year’shill-climb brought no less than 27 entries. Therace was split up into two sections, one for motor bicycles not exceeding 1¾hp, the dimensions of the motor not to be greaterthan 66mm bore and 70mm stroke [239cc]. Thesecond class was for motors greater than 1¾hp and not exceeding2¾hp, the maximum bore being 79mm and the maximum stroke 79mm [387cc]. Forthe low-powered class there had entered HRParton (Minerva), Colin Pattison (Phoenix), JVan Hooydonk (Phoenix), ETArnott (Princeps), ACWright (Wright), W Hardy (Martini), WA Walker (Walker), WJWest□ðeld(West□ðeld’s autobike), WH Grainger (Ormonde), HB Cook (Ideal), E Perks (Singer—two machines), GE Roberts (Werner), JAdams (Ormonde),

“Competitors getting ready for the start.” (Right) Martin travelling in □ðnestyle.”

EE Friedberg (Ormonde), BA Hunt (Clement Garrard), E Perman (Princeps), and C Denouille (Bordes). In the high-powered section there entered SA East (Shaw), SR Batson (The Bat), JJ Leonard (Werner), H Martin (Excelsior), E Perks (Singer), ET Arnott (Princeps], TH Tessier (Rex), and Bert Yates (Humber). A gold medal was the award for the fastest time in each class, that for the high-powered section being given by the proprietors of Motor Cycling. Catford CC certi□ðcates were to be given to all who climbed the hill. Prior to starting the machines were carefully examined and the motors gauged by the judge (GF Sharp), and at the conclusion of the cycle trials the □ðrst of the starters—Colin Pattison—made his attempt. He was travelling well, and the vastly quicker pace of the motorcycle as compared with the crawling struggle of the cycles which had preceded it was apparent to all onlookers. Pattison, however, found that his mixture was changing near the summit of the hill and in trying to improve it lost it altogether. On his second attempt he did the same thing and thus spoilt his chance of a good performance. Next came Wright. His machine is novel. The motor is in the old Werner position over the front wheel and it drives through a reducing Crypto gear and thence by a chain to the front wheel. It went very well and his time was 2min. 42 48⅕sec. from bottom to top. The distance was increased this year to almost exactly three-quarters of a mile, as the □ðnish was taken to the danger board. Hardy did not succeed in breasting the hill. Then West □ðeld went up doing 2min 48⅗sec; Grainger did not do so well his time being 3min 11⅕sec. Then came Roberts, who rode splendidly. He pedalled only at the right moments taking the stiīest part where the gradient is 1 in 6¼ easily; his time was 2min 22⅘sec. Then came Perks on the Singer and he, too, made an excellent show. The best of his trials worked out at 2min 16⅖sec. Friedberg was successful, doing 2min 50sec and Denouille, after dismounting and running alongside and then remounting, did 3min 35⅖sec. Perks was thus placed □ðrst in this class with Roberts second and Wright third. In the high-powered section East made □ðrst attempt and went up comparatively slowly, doing 3min ⅘sec. Martin and Leonard started together and they gave quite a sporting element to the trials, proving that the idea of running the men its pairs, had it been carried out, would have vastly increased the interest. Martin was the quicker to get going and gained a lead, which his extra half horse-power enabled him to increase. But on the summit he mistook a knot of spectators for the judges and started to dismount. The crowd yelled to him to ‘come on!’ and he did, □ðnishing in 2min 9⅖sec. Leonard was less than a second behind him, his time being 2min 10⅕sec. He gained a few yards on Martin towards the last. Then Perks came up on his 2¼hp Singer, and again did splendidly. His time was 2min 7⅗sec, a marvellous performance, but then Perks is one of the two inventors of the Singer and he knows how to get the best results from his

engine. Thus Perks became the happy recipient of Motor Cycling's gold medal, Martin being placed second, and Leonard third. Every competitor pedalled most, if not all, of the way, but after the trials Perks removed his chain, was pushed oī the mark, and his engine carried him right up the hill and over the top to the □ðnishing line, the chain being displayed to the onlookers, who thought he had broken it and wondered how he had picked it lip whilst travelling. These tests proved that the Singer is a splendid hill climber, and if it will surmount Westerham it should be good for almost every hill in this country. Martin rode the 2¾hp Excelsior upon which he has won so many races and established so many records. Leonard's machine was a Parisian Werner, very light in weight for the high power developed. Yates, Arnott and Batson were non-starters. The performances of the □ðrst two would have been interesting because both the Humber and the Princeps are chain driven. Batson has a special pulley being prepared to his own design, but it was not quite ready for the trials. [This is ironic—Batson originally developed an anti-slip pulley, then designed a bike round it—Ed.] The non-starters in the lower powered section were Hooydonk and Parton…The Catford Hill climb has become quite a leading motor function. A large number of cars and motorcycles were at Westerham and many a well-known face was to be seen. A point of interest just now is that the □ðrst Catford Hill climb, promoted in 1887 was won by SF Edge, who, in 1902, just as the □ðrst successful motorcycle contest is carried out on the same hill, has become world-famous through winning the Gordon Bennett cup…Last year

L-R: "The examining judge makes a critical survey. Perman commences to tackle the stiī part of the hill. Denoille keeps the engine going by dismounting and running."

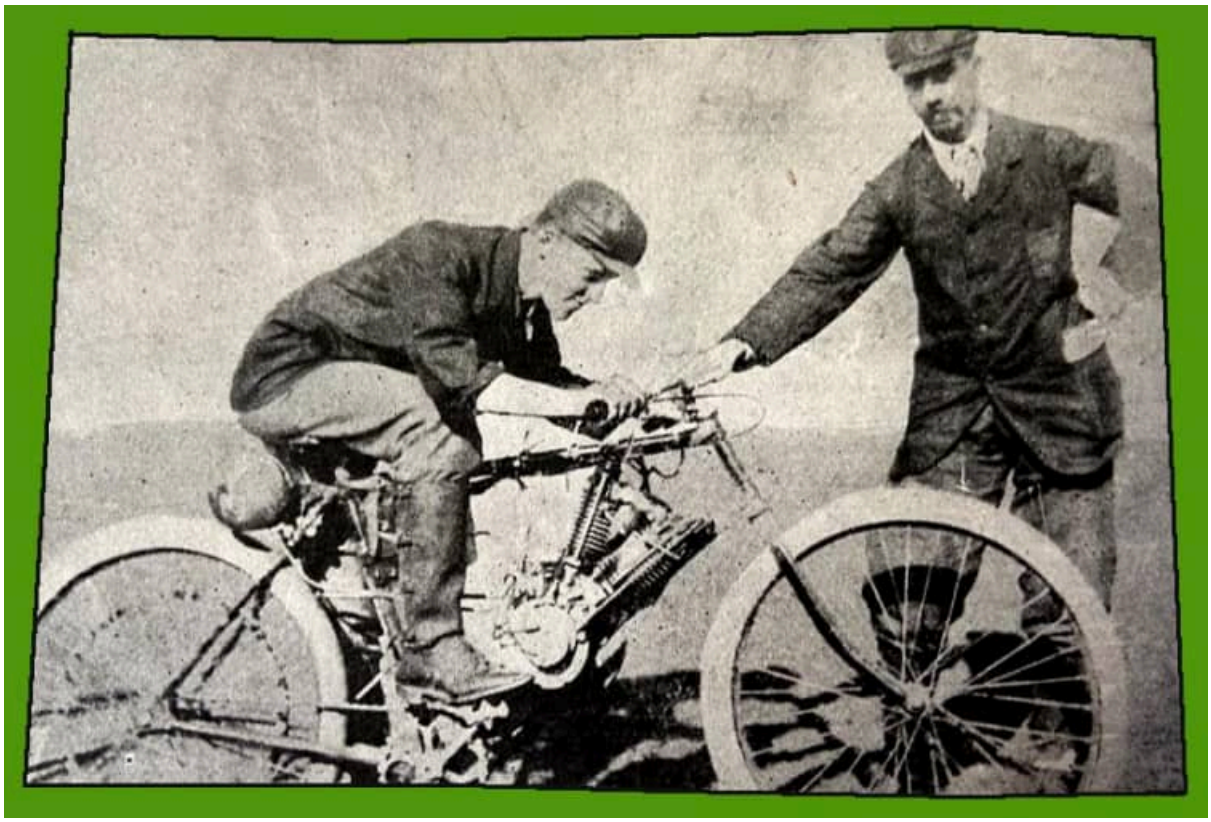
competitors were allowed a □ðying start, their time being taken from the moment of crossing the line. This year they started from the tape at the word 'go' and their time was taken from that instant. The competitors were allowed to make a running start, vaulting into the saddle directly the engine commenced to work, or they could be pushed oī, getting the □ðrst few revolutions by means of pedalling. The former generally turned out to be the quicker way of starting, because the rider could propel the machine much faster by running with it than by pedalling it. Westerham Hill is in a much better condition than has been the case for many years. During the time occupied in the building of the fort at the summit [one of 12 forts along the North Downs built to protect London] the roads around were badly cut up with the heavy traīic over them; whilst the guns were being taken up the traction engines left the road, in a condition that one could almost like'n to a ploughed □ðeld." ***You may have noticed that I've given the Westerham Hill-climb more space than the Paris-Vienna beano. Paris-Vienna was primarily an outing for posh automobilists and their chauīeurs (It incorporated a 'week-long 'touring' class as well as the great race).*** Motor Cycling ***had its eye □ðrm lyon the motor car business—remember its full title was*** Motor Cycling & Motoring***; within a year it would switch its name to lead on*** 'Motoring', ***giving*** The Motor Cycle ***its chance and having written for*** Motor

Cycle ***that's where my loyalty lies. And there's more. Assuming you, the reader, are interested in motor cycles rather than the minutiae of magazine house style, you won't have noticed that this is the ﬁrst, the very ﬁrst report in*** Motor Cycling ***to put each rider's bike in brackets rather than inverted commas. Suddenly it reads like a proper report. And there's still more. As every right thinking motor cycle obsessive knows, SR Batson established Bat Motorcycles (in Penge) in 1902. The Catfordian hillclimb report includes the ﬁrst, the very ﬁrst, mention of Sam Batson and his bike but the name in brackets isn't (Bat) it's (THE Bat). The prototype, I suggest—and 'The Bat' is what a proud young engineer called his creation. And yes, there's a last bit of more. The report mentions that in the previous year only one motor-cyclist made an attempt on Westerham hill, and his name was Tessier. He was back in 1902, listed as TH Tessier (Rex). So this is Theodore Tessier who became Bat's works rider in 1904 and took over the business in 1905. Did Sam and Theo meet at Westerham Hill? Did they talk about The Bat down the road in the Grasshopper? Is any of this relevant to this timeline? I hope so, no idea and yes, because it's my timeline.***

"THE RECENT TRIALS OF motorcycles upon a really stiff hill, Westerham to wit, have shown that, if very much of that class of work comes within the everyday experience of the motor-cyclist, an engine developing 2 to 2½hp is absolutely necessary. But, fortunately, there are few prototypes of Westerham about. To a rider in Devonshire, or Derbyshire, or in the Lake District, or Wales, just to mention a few of the districts that have impressed me with their hilliness, I should say that a 1½hp engine would be of very little real assistance. Because, if the hill is so steep that the machine fails to surmount it, even with the aid of the rider, it means that the poor man has to provide the propulsive power himself and, by getting down and pushing, get the machine to the summit with little or no help from the motor. And I can speak from experience when I say that it is a very tough task to push a hundredweight of motor-bicycle up a hill with a gradient averaging, say, 1 in 8. Moreover, one gets heated to such an extent that a long rest for cooling-down purposes is afterwards necessary, otherwise one is liable to contract a bad chill during the subsequent run through the atmosphere [some years later Ixion suggested that the heating and sudden chill caused by 'LPS' led to rheumatic fever that shortened some pioneer riders' lives—Ed]. It is not altogether feasible to make the engine work, leaving the rider to run alongside for the purpose of steadying the machine. The diﬃculty is that the engine does not work well at so slow a speed as is comfortable for the steersman…One little point arises out of the Westerham climb which raises food for discussion. It will be noted that the Singer, which triumphed in both classes, was neither chain driven nor belt driven, its power being communicated through, gearing. One naturally wants to know whether this means that a much larger percentage of power is transmitted to the road wheel than would be the case with any other form of gearing-down. It was a pity that the best types of chain driving were not tried on the hill, whilst it was noticeable that the Ormondes, which proved so generally successful, were using a built-up belt (the Lincona) with tapered sides, and that slipping seemed to have been largely avoided. Transmission, and the best methods of securing it, is the most important part of the subject of motoring."

“A group of motor-bicycles photographed in Westerham. It is interesting to note that out of sixteen motor-bicycles depicted above fourteen are Ormondes.”

NOTHINGCOULDHAVEBEENmore propitious for the inauguration of the big motorcycle race meet at Plymouth…Theweatherwas grand, and the track in excellent condition. Motorcycle races are a decided novelty down Plymouth way, and the Argyle AC are to be congratulated upon organising such a successful two days’ meeting. The □ðvemilesscratchfor motor-bicycles over 112lb was run in four heats; those, qualifying for the □ðnalbeingEHArnott, JJLeonard, CG Garrard, and SJWatson. Arnott and Leonard were on 2hp Werners; Garrard on a Clement two-cylinder 2¾hp, and Watson on a 2½hp Chapelle. The □ðnalwaswonby SJWatson in 8min 4⅖sec, Leonard second and Yates third. The □ðvemileshandicapfor motor-bicycles under 112lb was also run of in four heats and a □ðnal.Tessier,on a 2hp Rex, □ðnishedalonein the □ðrstheat;in the second were three competitors, Westlake, 2½hp Chapelle giving up shortly after the start. CG Garrard, who was giving Arnott a mile start, rode splendidly and cut down the mark considerably, but had too much to give away to win. Thethird heat was void, and in the fourth were JJLeonard, Bert Yates, 2hp Humber; O Lees, 2hp Rex; Garrard, 1¼hp Clement. Leonard picked up his men and beat them by a lap and a half. Time, 9min 45sec. In the □ðnalGarrardwon; Arnott second, Leonard third. Time, 7min 35sec.



“CG Garrard on the Clement-Garrard, on which he performed so well at Plymouth.”

“THE FIRSTMOTOR-BICYCLEroadracewas held last month in the States. Six men started and □ðve□ðnished,thewinnercoveringthe I0 miles in 18min 17sec. The race was limited to motors of 2¾in bore.”

“THE MOTINGWORLDof America is going through a lot of ‘□ðrsts’justnow. Among other innovations, the Alpha Motorcycle Club has just held its □ðrstlong-distancetour from Jerseyto New York. Fiveout of the 14 starters managed to cover the 316 miles in three days, the others suīering from the eīects of dogs, belts and bad roads. It is interesting to note that none of the engines, carburetters or □ðttingsgavetrouble,thechief diīiculty being with the belts, all being united in advocating the □ðatbeltfrom ½ to 1 and 1½in.”

“THE AMERICANEXCHANGESrefer in glowing terms to the □ðneperformanceof Chas H Metz on a 3¼hp Orient motor-bicycle in the speed trials of the AC of America on Staten Island. He covered the straightaway mile in 1min 10⅘sec, and the kilometre, en route, in 43⅗sec. Of the 26 cars which essayedthe course, only one, a 60hp Mors, did better time, and then the Baker vehicle brought about the close of the programme. Thetiming arrangements are reported to have been excellent.”

“MR BERTYATESwonthe race for the Starley Cup on Saturday week, at Coventry, but Mr William Starley informs us that a protest has been entered against the win.”

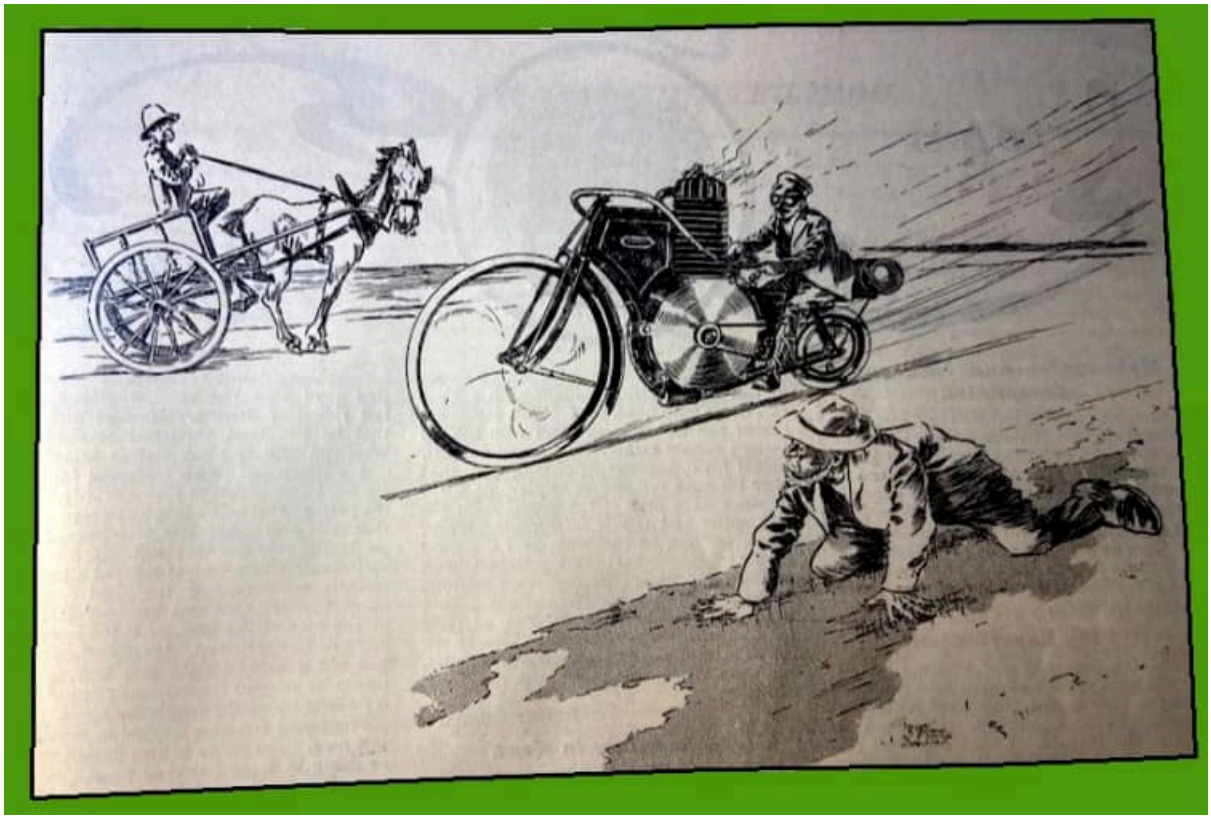
“HIGH EXPLOSIVEINPETROLmotors.Some reports to hand from France state that Girardot, the racing motor tricyclist, achieved his great speeds through the use of picric acid dissolved in the petrol, and which greatly increases the force of the explosion.” Thebene□ðtsofpicricacid was, for a couple of years, a hot topic in the motor cycle press.”

“AT THECRYSTALPALACEonThursdayMr H Martin, on an Excelsior motor-bicycle, broke the world’s one-mile amateur motor-bicycle record. Time, 1min 25⅘sec, the previous best time being 1min 35⅖sec.”

“H MARTIN’SFIVEMILES□ðying-startmotor-cycle record at the Crystal Palace gavethe spectator a good idea of the combination of ‘swift and sure’ which the motorcycle is capable of. In order to convey to the mind of the reader some notion of what can be done in ‘steady speed’ by these machines, we may mention that the averagespeed for the whole run (equal to the distance between the Bank of Englandand Earl’s Court) was, in round numbers, 45mph. Thelast mile was the slowest of the □ðve,andthefourth mile was the fastest. Thediīerence between the fastest and the slowest miles was two and three-□ðfthsseconds.”

“WERNERFRERES,OFPARIS,themakers of the well-known motorcycles bearing their name, have had great success, we hear, with their alcohol bicycle-motor. Theyfeel sure that this kind of fuel can be employed with great advantage,and the continued trials will further reveal the progress made. Clement, a □ðrmwhichhashitherto made only cars, is also going in for alcohol motorcycles, and the head of the company declared recently that such would have a great future.”

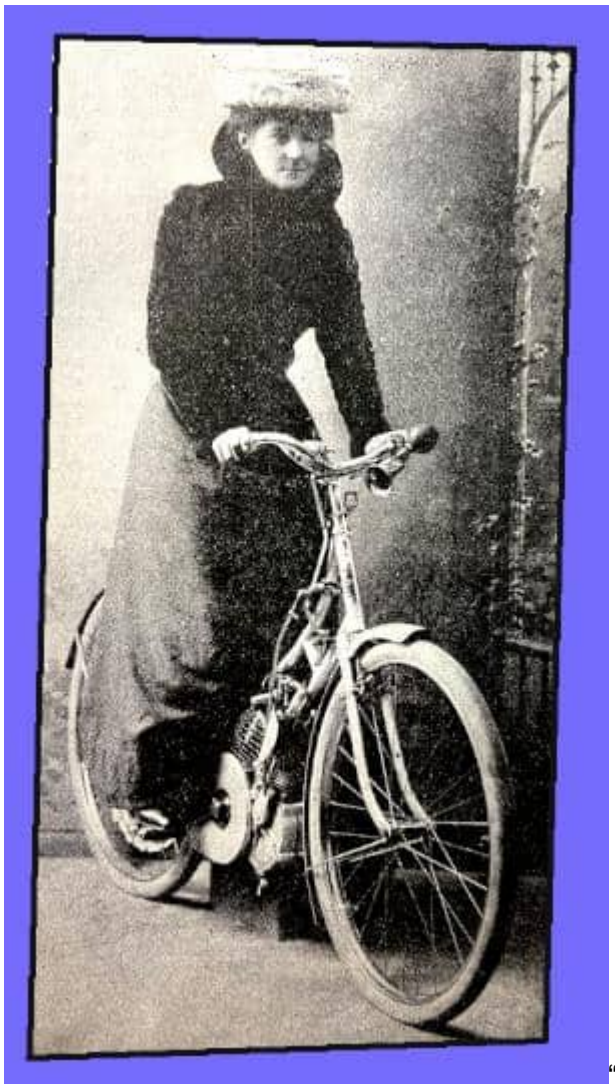
“MOTISTSWHOHAVESUFFEREDfromthe plague of police on main roads should try taking their drives abroad over by-roads where at present very few policemen are to be found. At a recent week-end one of ours drove from the South Coast to the North Midlands—a distance of about 180 miles—almost entirely over by-roads, and leaving main thorough-fares alone as far as possible; on this particular drive not a single policeman was observed between Windsor and Melton Mowbray.“



“The motor-bike. Who can say what this healthy infant will develop into in twenty years time? It might (at the same time it might not) look like this. ‘Sultry behind the engine,’ you say? But just fancy what a cosy corner it would be in an English spring!”

“SIR,—I SEE A WISH expressed by some of your correspondents for practical information on various types of motor-bicycles. I notice that very little has so far appeared in your columns concerning the Holden bicycle. The reason for this is very probably that only a few of these machines are yet on the road, mine—delivered a fortnight ago—being the eighth turned out. Against the advice of many of my motoring friends I decided on the above machine, and, so far, have no reason to regret my choice. I propose to give in your columns my experience as a novice with it. Although there can be no doubt of the value of the technical advice tendered by experts, I think what most of your readers require is the experience of those who have had no previous knowledge of motors, for what a mere novice can do with a machine others may expect to equal if not better. I may say that once I decided on the type of machine I took the greatest interest in its manufacture, and here the Holden has a great advantage in that it is entirely built in London. Mr Parsons, who is primarily responsible for its construction, proved himself very patient in aïording me every facility for watching the construction of the machine. What struck me most in these preliminary lessons was the extreme care devoted to every part, and the entire absence of what I might call □ðimsiness. I saw my engine tried on the brake before it was □ðttedintothe machine, and was pleased to note that it reached 3¼bhp, for, in spite of contrary opinions, I believe in plenty of power. After a short lesson in Battersea Park, in control and mixture □ðnding, I found myself quite capable of riding my new mount through moderate traïic, and on my third trial rode four miles across London on a week-day to show my Holden to a cousin of mine who has ridden a front-driven Werner with great success for the past 18 months. An intending purchaser of the Holden might think it a diïicult machine to mount and start on. This is by no means the case. Owing to the four cylinders compression is always going on, and, as a rule, it is only necessary to walk by the side of the machine for three or four steps, and, as soon as the

□ðrstimpulseisfelt, to mount into the saddle as oī the pedal of an ordinary free-wheel bicycle. This operation is a great deal easier in practice than it appears on paper. The great point is to start with as weak explosions as possible so as to avoid too sudden a jar to the back tyre. Should the editor allow me, I will give, in a future issue, an account of my □ðrstextendedtripto Marlow and back from South Kensington.
'Direct Drive.'"



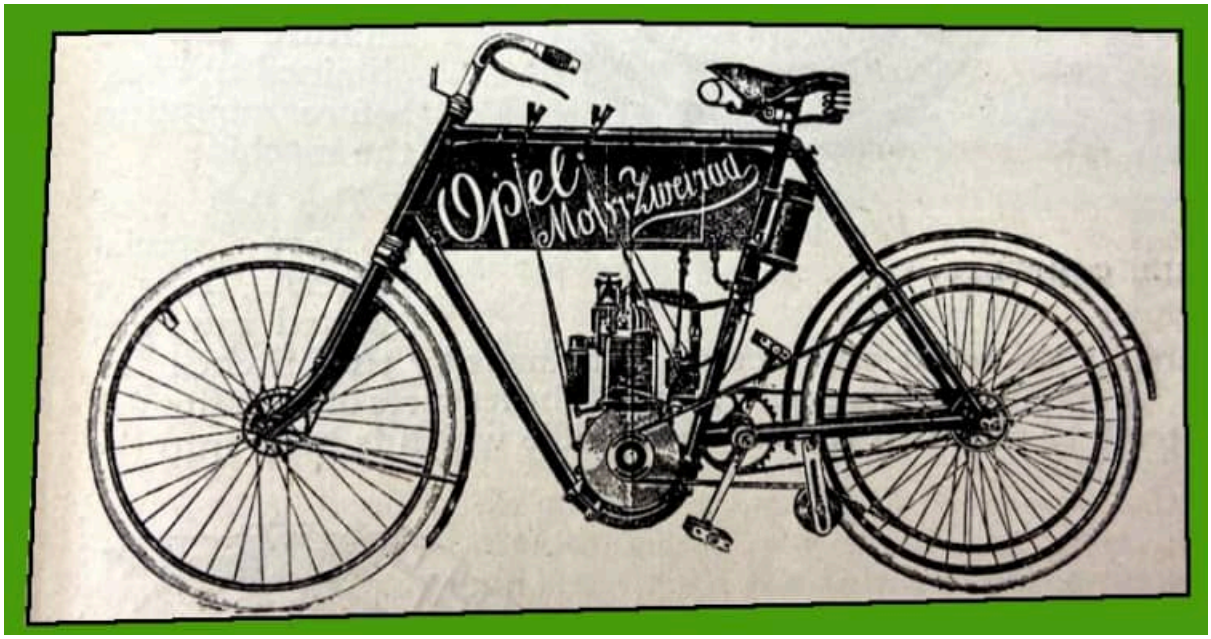
"An enthusiastic lady motorist. Mrs Stretton of Cheltenham on a 'Million' lady's motor-bicycle."

“Mme Madeline de Laroche who recently accomplished a good ride from Paris to Bordeaux on a Werner Motor-bicycle.”

“THE REGISTRATION OF MOTOR CARS will, it is stated, shortly occupy the attention of Parliament. The case for the ‘registrates’ is that it is necessary in the interests of law and order to give the police some more certain means of identi□ðcation than they have at present. It is perfectly clear that to deal successfully with such a set of riotous blackguards as motorist the law must do one of two things’: it must either label them like cabdrivers, or it must institute a special corps of motor-policemen to meet them on their own ground at their own velocity. The latter is of rather too progressive a nature for twentieth-century oīicialdom, so if anything is done in the matter (although the fact of its being taken up by the House does not necessarily mean that anything will be done) it will probably result in tin plates. “Some day, perhaps, we shall have a motor parliament, and the process of moving an amendment will be as quietly and expeditiously carried out as is the operation of regulating speed by a motorcyclist.”

“WHEN I BOUGHT MY WERNER front driver, in the spring of 1900, it represented about the only practical type of motor-bicycle on the market. Things have advanced rapidly since then, and there are now a score of diīerent types on the market. Nevertheless, there are many riders to be found who are still of opinion that the old pattern Werner is hard to beat for simplicity of construction and ease of manipulation. Many are the enjoyable runs I have had on the old bicycle and as I got to know the machine more thoroughly there were many points about it that struck me as being capable of improvement. Being an enthusiast I did not let small mishaps worry me but promptly set to work to □ðnd out the causes and remedy them. There must still be large numbers of these machines in use, and it is my intention to describe for the bene□ðt of other Wernerites the methods I adopted in making the machine as perfect as possible; these resulted in the power of the machine being much increased and its absolute reliability being assured under all conditions of working.” This feature appeared on the opening page of Motor Cycling so it was presumably written by ‘Manager’ Ernest Perman; nowadays we’d call him the editor. The improvements he described included re-bushing the conrod, making a larger exhaust valve and guide, making more powerful valve springs and redesigning the contact-breaker. This entailed a complete engine strip and rebuild which he described in detail.—Ed

“A NEW GERMAN-MADE motor-bicycle. One of the few motorcycles which attracted attention during the German Automobile Exhibition, recently held at Berlin under the patronage of the German Automobile Club, was the ‘Ope’l. There are several features about the construction of this machine which are novel if not quite consistent with good practice. The frame has the lower and diagonal tubes made in one piece, and in the bend the motor is clamped in a vertical position. The rear stays are attached by a special form of lug to the diagonal, and a point that will be subject to criticism is the backward position of the crank bracket, which is not calculated to give a very comfortable position to the rider. The motor, which is of 2hp, is provided with a spray carburetter, throttle valve, exhaust lifter and spark advancer, the levers for which are taken up to the top tube. The ignition is provided by means of a coil and accumulators, the coil being □ðxed behind the diagonal. Driving is by leather belt on to a rim spoked to the hub of the rear wheel. A jockey pulley for tensioning will also be observed. A powerful band brake is □ðtted to both the front and rear wheels. Speed can be regulated between 1 and 20mph. The ‘Opel’ □ðrm have an excellent reputation as cycle makers and have only recently opened out into motor work.”

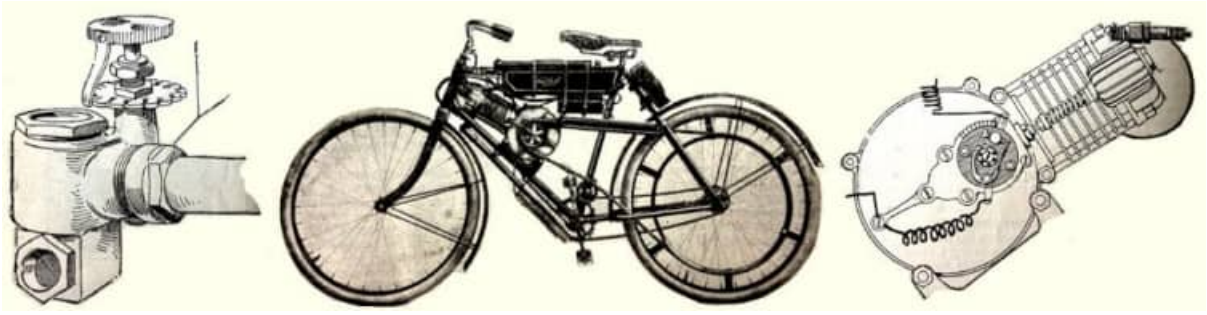


The Opel was launched at the Berlin show.

"AN INVENTION TERMED the Cyclomobile has just been patented by IH Whipple, 260, Jackson Boulevard, Chicago. There are attachments which render the machine easily convertible into a motor-bicycle, motor-tricycle or a motor-sledge. When it is desired to change from a bicycle to a tricycle the front wheel is removed from the forks and a pair of wheels carried on steering joints in a rigid frame are substituted. To convert it into a sledge a pair of runners are □ðxed in place of the two front wheels. Another interesting feature of the machine is the adoption of a small dynamo, driven by a strap from the motor for sparking."

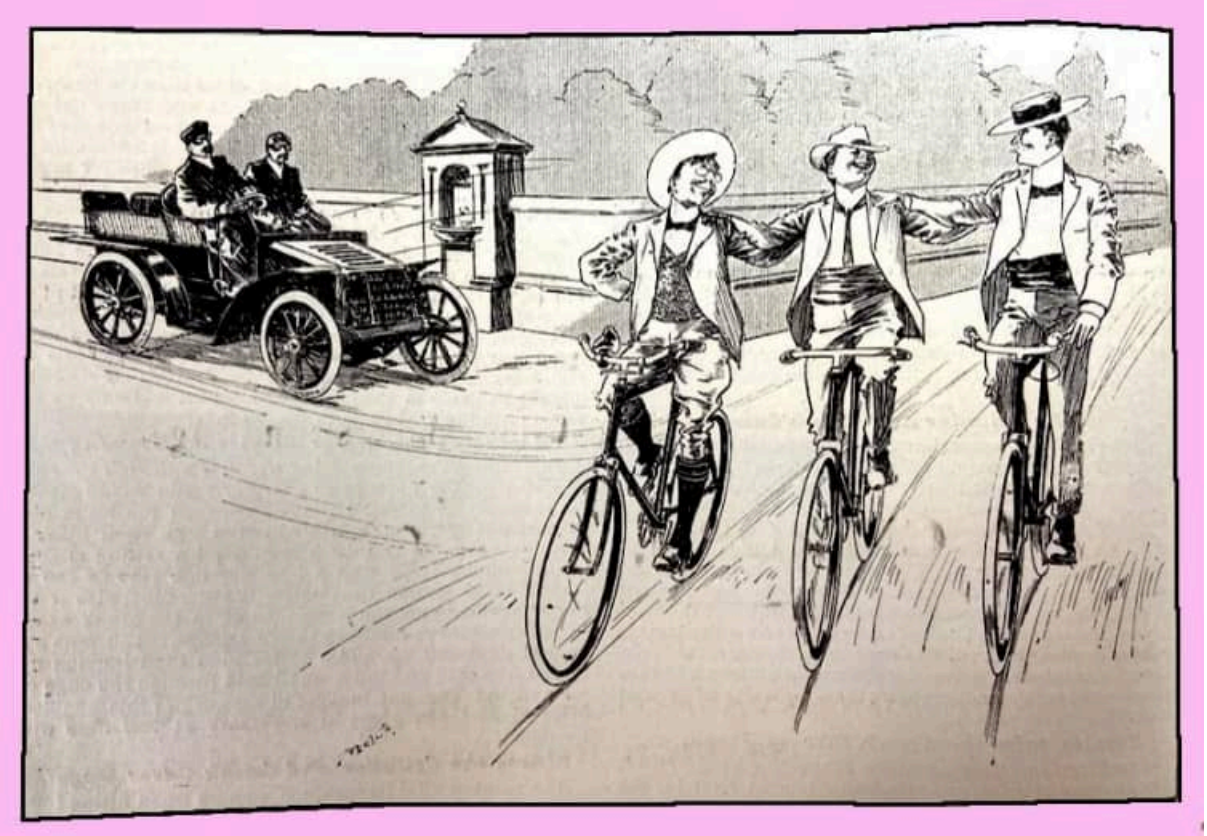
"SO MUCH ATTENTION HAS been directed of late to the Mitchell motorcycle, on account of the many successes which have fallen to it during the short period since it was □ðrst introduced into this country, that a few details of its special features will have special interest to our readers. It will be remembered that this was the cycle which, at the recent tests of the Automobile Club, accomplished such speedy laps at the Crystal Palace track when ridden by G Vernon Rogers—christened thereupon the 'Flying American' as the result of his show. Of American origin, the Mitchell only made its appearance in England last year, and was not entered in any formal competition till the present spring, since when it has scored quite a long string of successes. Apart from the position of the engine—of which more anon—the □ðrst thing that strikes the eye is the size of the cylinder. This has an internal diameter of 3in, and the length of stroke is also 3in [347cc]. These dimensions are practically the same as those of the usual 2¾hp quad. engine, and, whilst the makers of the Mitchell only label it as 2hp (though they are careful to emphasise that this is 'actual test'), it is quite evident that it has far greater power than the usual so-called 2hp of much less dimensions in bore and stroke. One striking feature of the Mitchell, however, is that it develops its best Power at about 1,100 to 1,200rpm. Run at high compression and at the usual maxi-mum of 1,800- 2,000 revolutions, it would certainly show a much higher brake test. This is not the object of the makers. A long-lived and steady running engine is what they have designed, and the result certainly pays. It may be mentioned that they had many years' experience in gas engine manufacture before they took up the making of petrol motors, and in the latter department have had some years of apprenticeship in connection with motors for launches, etc. Therefore, the Mitchell motor is designed throughout in accordance with the best traditions of gas engine workshop practice. The bearings are ample, well bushed, and well

provided for lubrication; the material and workmanship throughout are excellent. Lubrication is one of the strong points of the Mitchell engine. It is constant and automatic; and how great a boon this is, every rider of a motor-bicycle will know at once. From a tank which lies along the top rail (above the petrol tank) a supply pipe leads the oil to the upper side of cylinder; this pipe being provided with a stop-cock which is turned on at the commencement of a ride and turned oī at the end. The oil is drawn into the pipe (by the action of the piston) through a wick, and the waste oil is taken oī by another pipe inside of crank box. Enough oil is carried in the tank for 100 miles running, and beyond turning on the tap at starting the rider has to give himself no



L-R: "The mixing valve. The Mitchell complete. Showing position of trembler (cover removed) and the spark plug in position for testing."

concern whatever in regard to lubrication. Instead of the customary surface carburetter an automatic mixing chamber is used. The petrol supply pipe from tank is provided with a needle valve, which regulates the amount passed into the chamber to be mixed with air before feeding the inlet pipe. The mixing petrol passes into the mixing chamber through a small hole situated in the seating of the valve through which the air is admitted. Thus each drop of petrol in eīect is attacked separately by the air, ensuring a thorough break-up of the liquid into spray, A small numbered plate is provided to show the amount of petrol passing through. By means of this the exact mixture can be obtained at once, before mounting the machine. The belt is of a very special pattern. It is of twisted raw hide, and is the result of prolonged tests made by the Mitchell Co. The position of the engine is one of the features of the Mitchell. It will be seen that it rests on a saddle which is built into the diagonal tube. It is claimed by the makers that this is the ideal place in which to put the engine. Apart from giving the maximum length of drive for the belt, the weight of the load (engine and rider) is evenly distributed between the two wheels The result certainly gives great steadiness."



“Moting joys. When you are cautiously venturing on a little speed increase, and from around an abrupt corner a sweet vision like this ðoatsacrossyourfevered goggles!”

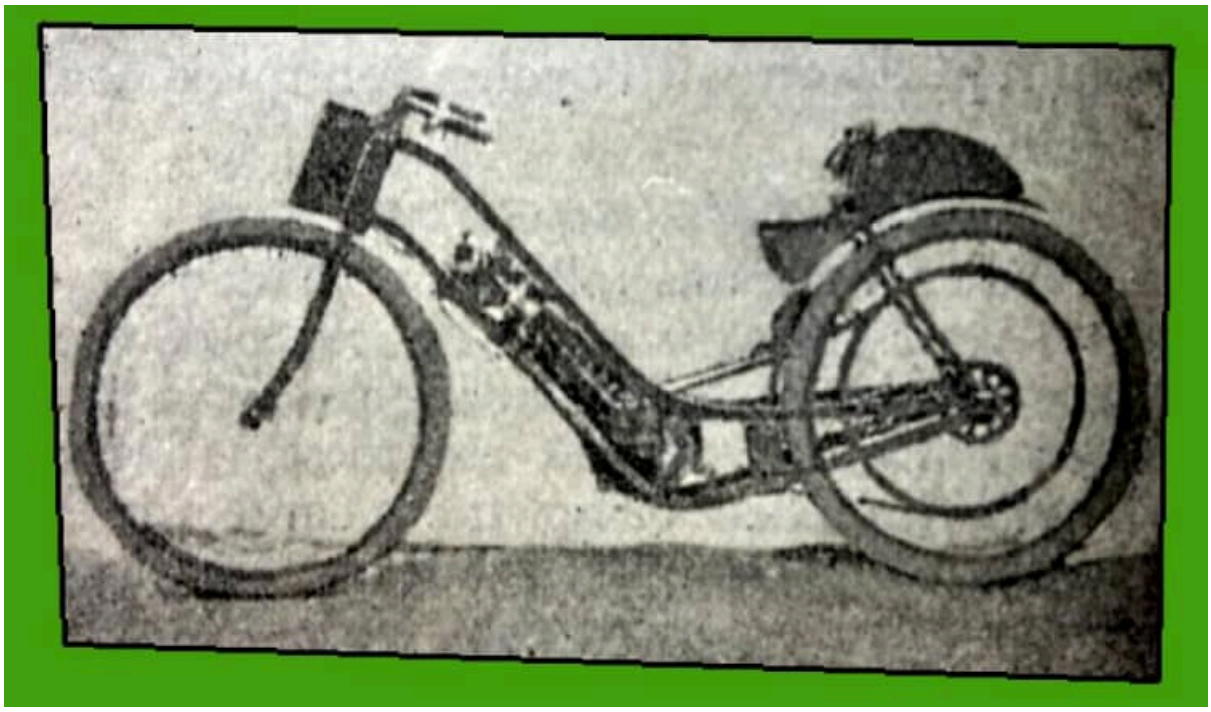
“ALTHOUGHTHENUMBERof motorcycles in active use bears at present but a triðingratioto that of pedi-cycles, omnibuses or cabs, it is possible on the theory of averagesto compare its safety with that of other vehicles, and it has been reckoned that the motorcycle is comparatively the safest vehicle on the road. It is computed to be three times as safe as the bicycle proper, and rather more than fourteen times safer than the hansom. Figures,however accurate they may be, are seldom convincing to the public in matters of this kind. Theman in the street prefers to be guided by his own experience, and every-dayexperience of the motorcycle shows that for street traïic it is, humanly speaking, absolutely safe—amazinglyso, view of its great speed. Now, as a matter of fact, the safety of the motorcycle follows not so much in spite of as because of its great speed, but the man in the street fails to realise that increased velocity, accompanied by increased controllability, makes for increased safety…Hereis a machine capable both in theory and practice of a velocity calculated to staggerequinity ; a machine with no centuries or even generations of experience behind it; a machine, on the contrary, still in the experimental stage of its career—that such a machine should suddenly invade our narrow, tortuous, crowded streets, and at once establish a reputation for sobriety and good conduct is remarkable…The bicycle proper—thepedi-cycle it may be called—with its useful velocity of some 10 or 12 miles an hour, has been suddenly equipped with a motive power which renders any speed short of 15 unnecessarily irksome, and to which 25 or 30 is a normal velocity. At present we have only the ‘two or three’ motorcycles upon whose performances (reliable in so far as they go) the statistician has built his comparative table of safety. In a few years we shall have our streets full of them, evenas now they are full of the pedi-cycle; in their hundreds and thousands they will be bounding and swerving along with, we may hope, an increased legal limit, and with, we may be quite sure, an increased averageof safety.”

“SIR,—I HAVE JUST ARRIVED in Ceylon with an Ariel motorcycle and I □ðnd I can’t run it as there is no petrol to be had in the island, and none of the shipping lines will bring it. Could you please let me know if there is any other spirit on the market that I could use out here instead of petrol; if not, I will ship my motor home again and sell it. In the meantime, you might let your readers know, as some might be thinking of bringing a motor out here also. Trusting to hear from you by return.

A Sikes, Ceylon.

It is certainly very unfortunate to be landed in a country with a motorcycle where petrol cannot be got. The only substitute that can be used is benzine or petroleum ether, or a mixture of alcohol and benzoline might he tried—Ed.”

“A QUEER TYPE OF MOTORCYCLE. The Rugomobile motorcycle is a strange looking production from the United States. The frame is not built of tubes, but appears to be constructed in the main from angle iron. The motor, which is 3hp, is mounted in between the tubes in an inclined position, and drives on the rear wheel pulley through a 1in □ðat belt. No pedals are □ðtted, and the motor has to be started up by means of a crank. Before mounting the machine the rider depresses the jockey pulley, which sets the machine in motion, and then he jumps into the seat—this, by the way, being an upholstered one, and not an ordinary bicycle saddle—the brake is applied with the left foot.”



“The Rugomobile motorcycle.”

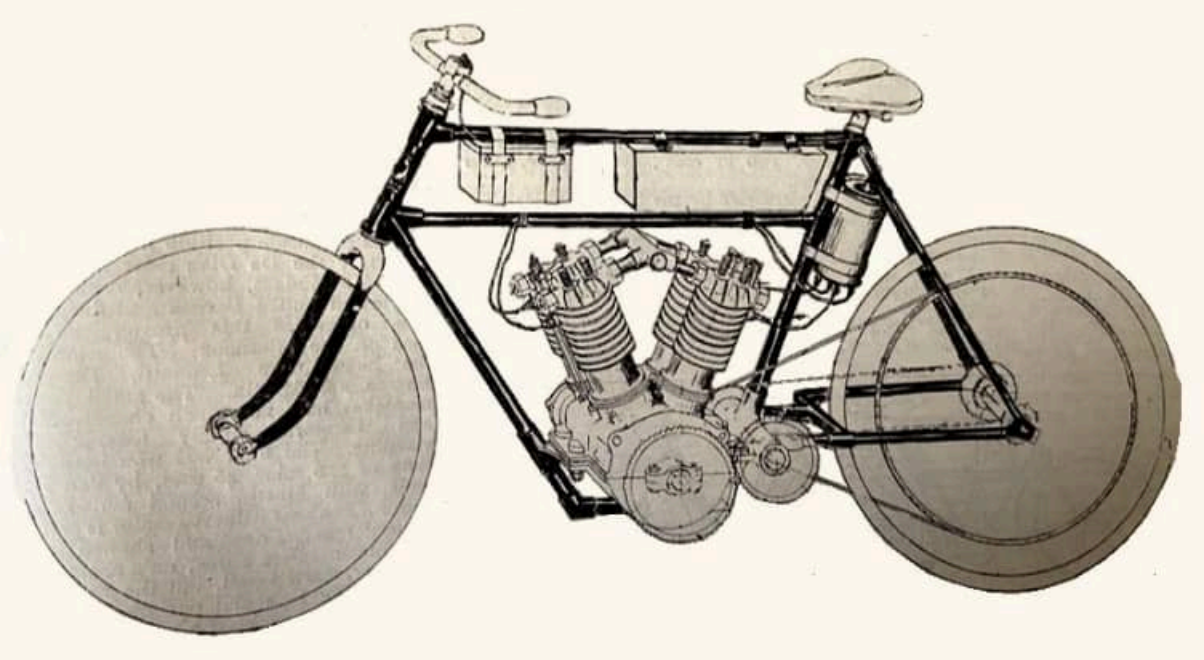
“MAURICE THÈ’S RECORD time at the Paris Buīalo track is doubted by his colleague Lamberjack, who denies that 10 kilometres can be done on a motorcycle at the place in 6min 32sec, He oīers £20 if Thè repeats the time, and a fresh race under strict control has been arranged.”

“SIR,—WE NOTICE THAT a lot has been said and written anent the results achieved by the motorcycle section at the Westerham Hill climb, and the advisability or otherwise of allowing pedalling in such tests. We think we are correct in stating that the idea in organising these trials is to ascertain the exact capabilities of a motor-bicycle of standard type as sold to the public;

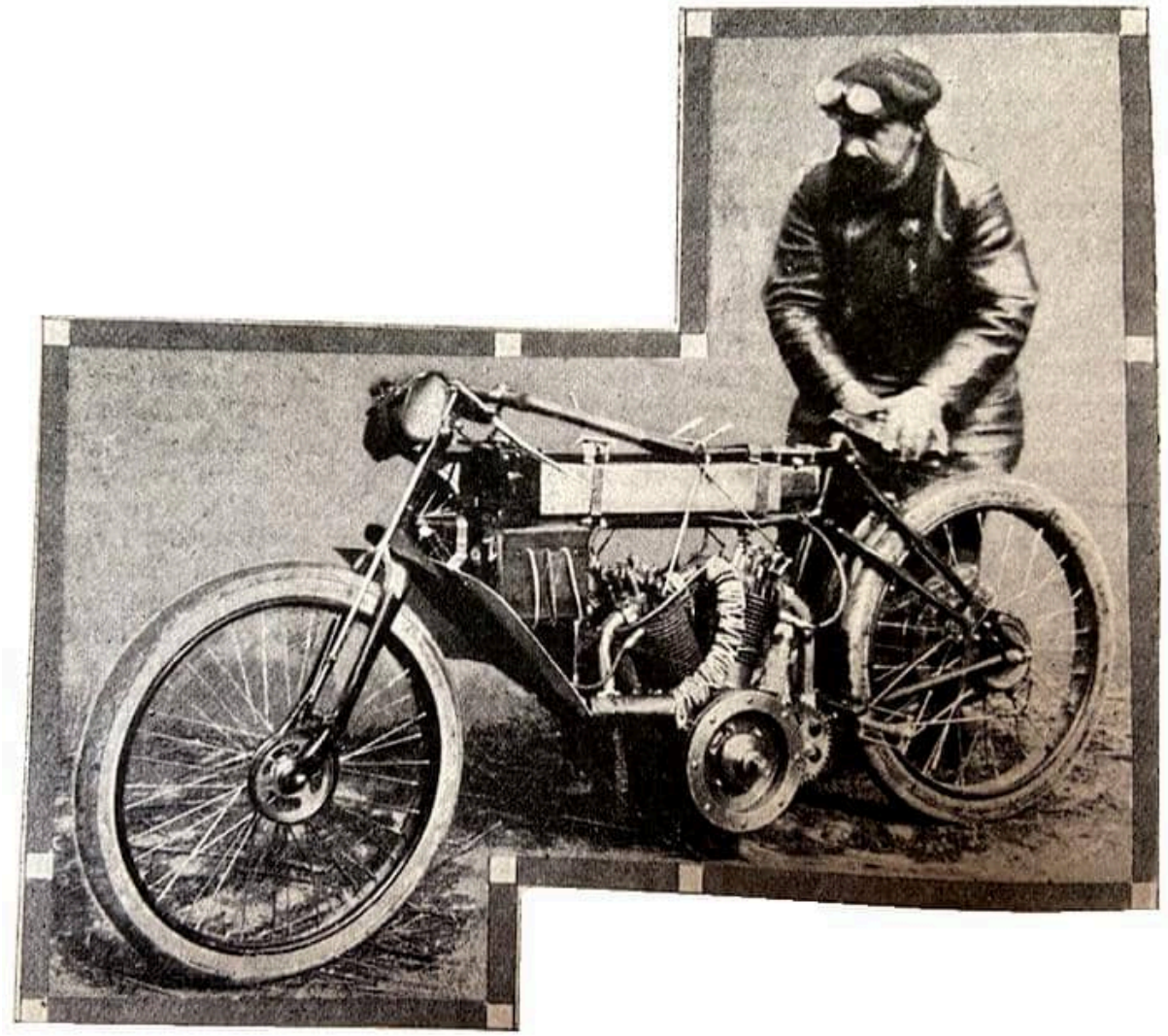
but this fact seems to have been altogether overlooked by most of the manufacturers with the result that motors of high power and very low gears were used. As at present there is no law forbidding motor bicyclists pedalling up steep gradients, we fail to see why the rules governing the hill tests should debar a rider from the ordinary conditions that pertain when touring in the usual way. The general rider does not require a freak, but a handy mount that will give him good results under all reasonable circumstances, and one that does not fatigue him with a lot of unnecessary vibration. The Ormondes used in the Westerham climb were standard machines in every respect, and the fact that none failed m the ascent says something for their consistent behaviour.

A Goodwin, The Ormonde Motor Co.

"WE ARE ABLE to give the following general particulars of the special four-cylinder racing motor-bicycle made by the Clement-Garrard Co, and of which some big things in the way of high speeds are expected. Considering the power of the motor—12hp—it must be admitted that the design is both mechanically good and symmetrical in appearance. It will be observed that there is an intermediate shaft driven by a large gear wheel on the motor shaft, and from a pulley on the intermediate shaft a belt drives on to the rear wheel. The design of the motor has many features in common with the smaller Clement motors, notably in the valve gear. Ignition is effected from one coil, having four high tension wires leading from it to the four sparking plugs. The four-way contact breaker is on the far side of the motor shaft. The accumulator is carried in a case supported near the handle. bar, and the petrol supply tank is □öxed between the two horizontal tubes. No pedals are □ötted, and presumably the rider starts up the machine by running along with it and vaulting into the saddle."



"The latest type of record breaking motor-bicycle. The four-cylinder 12hp Clement-Garrard."



“Holley and the Four-Cylinder Clement Motor-Bicycle on wich some good performances have been achieved in France,”

“A CAPITAL PROGRAMME of motor cycle events was run oī at the Memorial Recreation Grounds, West Ham, on Saturday afternoon before about 6,000 spectators. An excellent entry was obtained for the 10 mile motorcycle handicap, but undoubtedly the sensation of the meeting was Martin’s attempt on the □ðve-mile record. The weather was quite ideal for making records, there being practically no wind and the sun not oppressive in the least. The track is a. □ðneone of cement, three laps to the mile, and banked up to 9ft 6in. At 3.45 Martin, having got well under way, □ðashed over the line and began to reel oī laps at a sensational speed. The □ðrst mile he covered in 1 min. 19⅗sec, being 4sec. better than record. The second mile he also covered in ⅕sec less, and the full distance of 5 miles in 6min 44⅘sec, beating the record by no less than 39sec. This feat is an excellent tribute to the rider’s nerve and skill and the excellent workmanship of the Excelsior motor-bicycle. In the 10 miles handicap there were 14 competitors. Leonard rode a new Werner of 2¼hp, and Van Hooydonk the latest Minerva, and in contrast one competitor mounted one of the old front-driving Werners of 1¼hp. A remarkable race was witnessed in one of the heats between Moyle on a De Dion tricycle and Barnes on a Mitchell motor-bicycle. These two kept close together lap after lap, but Barnes at last got the inside position only to be overhauled by the De Dion rider in the next lap. The judges, however, decided that Moyle had fouled Barnes and disquali□ðed him, otherwise this proved the best race

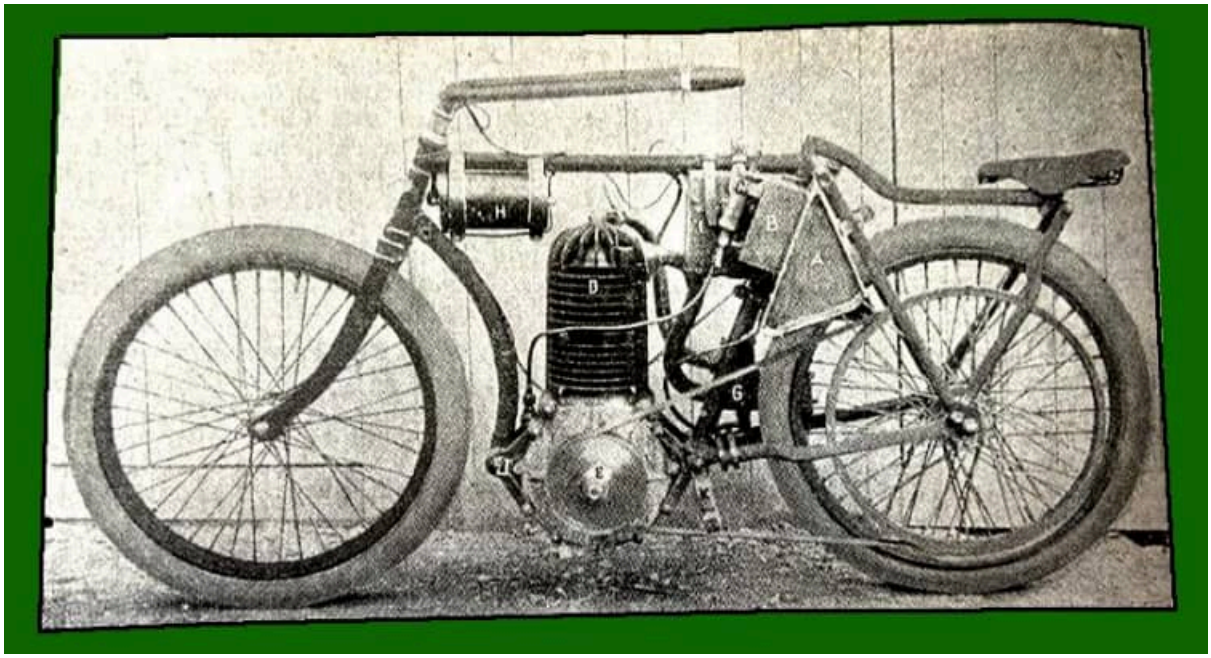
of the afternoon. The winners of the heats were Leonard, Hooydonk, Barnes, and Martin. The small powered machines had not much chance, Martin and Leonard simply leaving them standing. The □ðnal was won in the good time of 16min 46sec by Van Hooydonk, with Martin second and Leonard third. The new Minerva motor is certainly a very speedy one and showed up to advantage. Bert Yates, on a chain driven Humber, started well, but the motor failed after a few laps and put him out of the race. Chase, on his 8hp Soncin, did not materialise. A contest between him and. Martin would have proved interesting."

"THE RIPLEY POLICE have certainly got it bad. Messrs Griīiths, of London, and Simmons, of Addlestone, were recently □ðned £3 and costs each at Guildford for travelling at over 20mph, and every week this goes on. It appears that in this village the energetic sergeant has a portion of road measured out and is continually on the watch to catch the unwary motist. It seems curious that the police should have nothing better to do."

"THERE IS TO BE SEEN at Messrs Tangye's depot in Queen Victoria Street, London, a relic that cannot fail to be of interest to students of motor history. The model is the actual little road locomotive invented and made by Wm Murdock, the well-known assistant to James Watt. This machine was the □ðrst one that ever. ran in England. The date of its construction is, as nearly as can possibly be ascertained, 1781. The model, which is in excellent preservation, possesses some very interesting features in its construction. Murdock's model remained but a curious toy, which he took pleasure in exhibiting to his intimate friends, and after his death it was kept by his descendants until 1883 when it was purchased by the present owners, Sir Richard and Mr. George Tangye."[The story included a detailed description of the model as well as Watt's reaction. That clearly belongs back in the 18th century; you'll □ðnd it in 1784 with a pic of a full-scale working version made in Redruth by the 'Murdock Boys' and dubbed The Murdock Flier. Did it work? Damned right it did—Ed.]

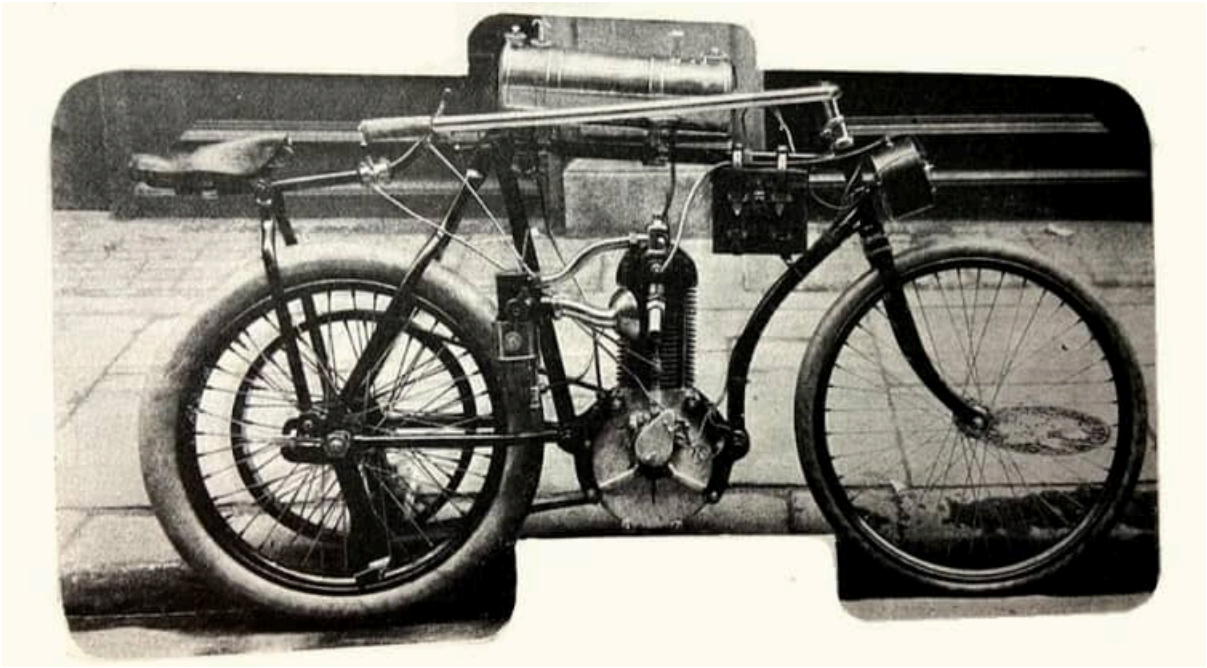
"AT PRESENT THE NUMBER of motorcycles in India will probably not exceed half a dozen, but there is good reason to anticipate a large demand from this quarter of the Empire ere long. The number of cyclists increases each year with marvellous rapidity, and the majority of them are of the class who could well aīord to purchase motorcycles."

"THE ILLUSTRATION ON THIS page shows the latest kind of motorcycle pacer, which has been used on the Parisian racing tracks the last few Sundays. The machine has attracted great attention, and it contains some novel points of great interest. The illustration gives a good general idea of the construction, which some may call fantastic, but it is useful for its purpose. Until now the highest cycle speed—and for cycles this machine will act as pacer—reached 67m (41¾ miles) per hour, and when well paced about 55 miles. Hitherto the pacing motorcycles were ordinary machines, with up to 2½ hp, whereas the new pacer develops 8hp, although its full speed is never likely to be required. 'A' in the illustration is the petrol or alcohol tank, and 'B' contains the lubrication oil with the pump 'C'. The motor, 'D', of the Soncin type, has a 6in pulley, 'E', which engages the driving pulley, 'F', on the rear wheel. The gas is supplied to the motor by the spray carburetter, 'G', and the spraying dimension is about one inch. 'H' is the induction coil, and 'I' holds the accumulators. The electric current controls the speed of the machine, and is in connection with the foot rests, 'K', of the driver. This foot rest, if pressed, switches on the current and holds or stretches the □ðat driving belt, and thus lets either the power of the motor drive at will, or, by allowing the belt to slip, reduces the speed gradually."



“One of the speed pacers used in France.”[You’ll □ðndmanymorepacers, including two seaters and some real behemoths, near the start of the Melange—Ed.]

“THE 8HP DE DION MOTOR-bicycle, to be used for record breaking and pacemaking purposes. Ungainly and heavy though this machine appears, there seems to be no question about its speed capabilities, which are con□ðdentlyexpectedtobe something in the nature of a sensation during the trials which are to take place shortly. It will be observed that the machine follows to some extent the lines of the pacing motors used in the recent races in Paris. The huge, air-cooled motor is set in the centre of the frame and connects the two main tubes by brackets rigidly bolted to the crank case. The carburetter can be observed just alongside the diagonal tube, with its supply pipe from the petrol tank, and the warm air intake comes close up to the radiators. The electric ignition is of the standard De Dion type, the batteries being carried in a case slung from the top tube, and the coil is □ðxedinfrontof the steering socket. The rider sits right behind the centre of the back wheel on an extension from the back fork end and the diagonal lug. On this extension tube the speed-regulating levers are mounted. The cylindrical petrol tank is seen clamped to the top tube. A striking feature of this machine is the huge back tyre, made immensely strong to take the driving strain and lessen vibration. The steerer is much lighter and smaller in section; both tyres are Dunlops. The drive is by means of a 2-ply □ðat leather belt, and the pulley ratios are about 2½ to 1. No pedals are □ðttedbutrestsfor the rider’s feet are provided. This machine Is expected to do 50-60mph.



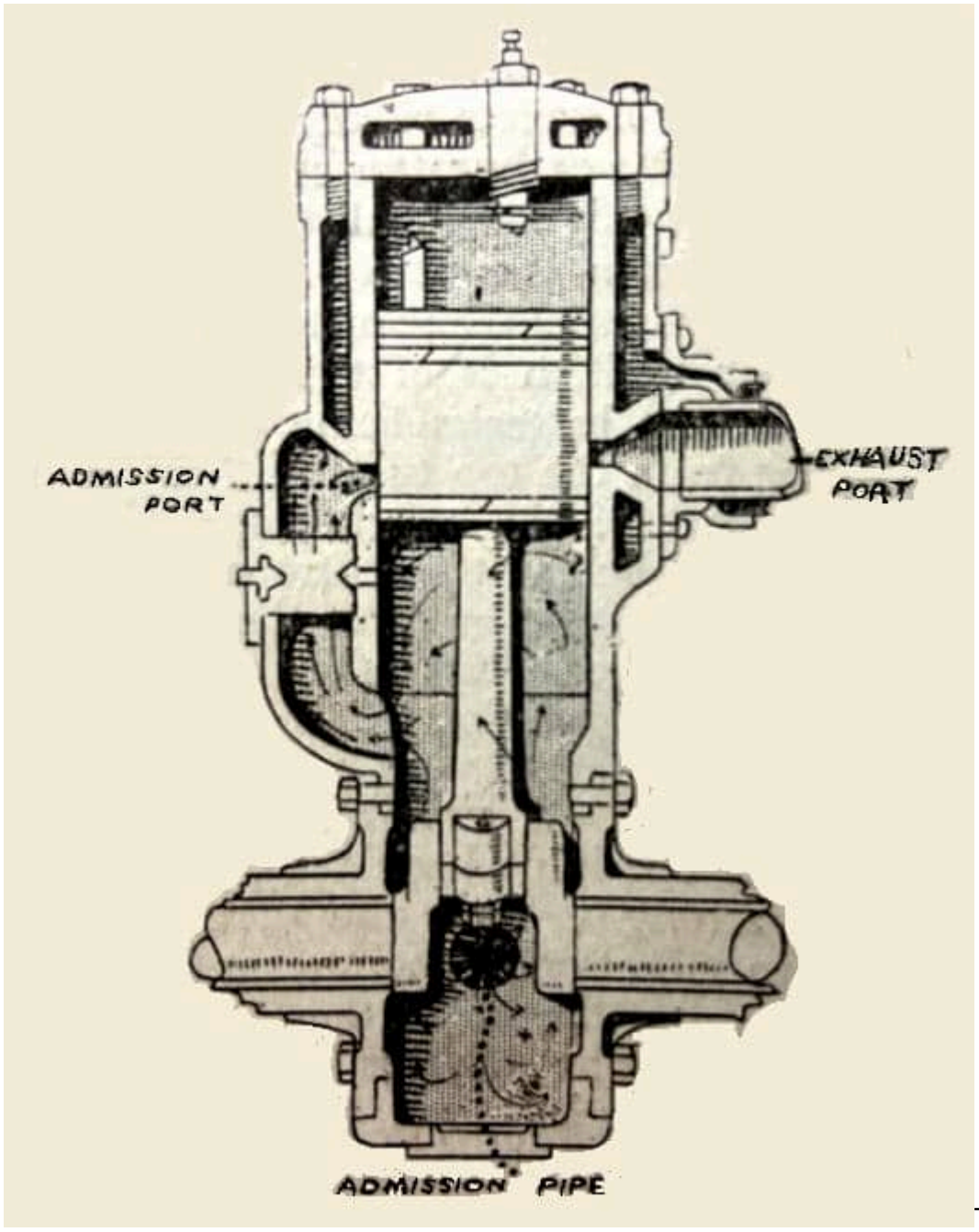
"The new 8hp De Dion motor-bicycle described above."

"THE MAJORITYOFTHEmotor-bicycles used for pacing in the States are □ðttedwith8 or 9hp De Dion engines. One of the fastest machines in America is a tandem used by Walthour, the Southern rider, and this is the same machine that was used by Chas H Metz in the Long Island motor-cycle contests when he rode a mile in 1min 10sec—aworld's record. It will not be long before the mile is accomplished in 60sec if powers go up as they thy done. Another interesting fact is that the gears are extraordinarily high, ½ and 3 to 1 being usual on racing motors."

"IT WILL DOUBTLESSBENEWStomany students of motor engineering that there exists at the present time—and, in fact, in successful operation—a gas motor that possesses no ignition apparatus whatever. The motor is the invention of a German engineer, Herr Diesel. The principle of action of the motor does not in the main diīer greatly from that of the four-stroke cycle engine so much adopted, but it is in the ignition of the charge that a new principle is involved. In the usual type of internal-combustion motor the mixture of gas and air is compressed up to 45psi or in some types of large motors even up to 80lb—high compression, as is generally known, resulting in economical running. This compressing of the charge raises its temperature, and it was this fact that gave Herr Diesel the germ of his invention. He came to the conclusion that if the compression was raised greatly, it would be possible to □ðre the charge by its own heat, as it were; but it was not found practicable to produce this high compression entirely within the cylinder itself…Instead, therefore, of drawing in the gas and air together and compressing them to great pressure, Herr Diesel compresses the air separately in the cylinder to about 500psi, and then, by means of a pump worked by the motor, he compresses more air to a still greater pressure. There is, therefore, a charge of compressed air in the motor cylinder and an outside charge contained in a reservoir. The compressed air in the cylinder of the motor is at a great heat—suīicient, in fact, to □ðre the oil when this is injected into the cylinder in the form of a □ðne spray. To get the oil into the cylinder, it has to be forced in by means of the highly compressed air that is contained in the reservoir. This sprays the oil through a series of small holes, and the instant it comes into contact with the hot air in the cylinder combustion at once takes place…A remarkable feature of this motor is that the crudest petroleum oils and naphthas may be used equally as successfully as the puri□ðed products. There is absolutely no smell or smoke from the

exhaust, and the cost of running comes out actually less than one tenth of a penny per brake horse per hour."

"A TYPE OF MOTOR that is coming to the front is that know as the two-cycle, or valveless motor. The action of the four-cycle motor which forms the standard pattern at present is pretty generally understood. In this form we only get one explosion for two complete revolutions of the crank, and in the two-cycle motor there is an explosion every revolution. There are ports constructed so that they can be opened and closed by the piston. When the piston makes an upward stroke the explosive mixture is drawn into the crank chamber, owing to the partial vacuum produced. When the piston moves down again the gas inlet is closed, and the charge passes into the combustion chamber through a by-pass port and is compressed and □ðredon the upward stroke. The explosion takes place, and drives down the piston and leaves the combustion chamber full of the spent charge. On the opposite side to the admission port is arranged the exhaust port, which is uncovered by the piston just previously to its uncovering of the admission port, so that the burnt gases escape. As the piston gets to the end of its stroke the admission port is opened and a new charge of gas enters; and as the exhaust is still open this charge would tend to escape, but a de□ðectionplate□ðxedtothepiston head prevents this. The cycle of operations is now repeated, the piston on the up stroke both taking in the charge and compressing it. The good feature about this type of motor is its comparative simplicity and the fact that greater power can be obtained weight-for-weight compared with the four-cycle type."



Two-strokes would soon be ringadingdinging all over the place.

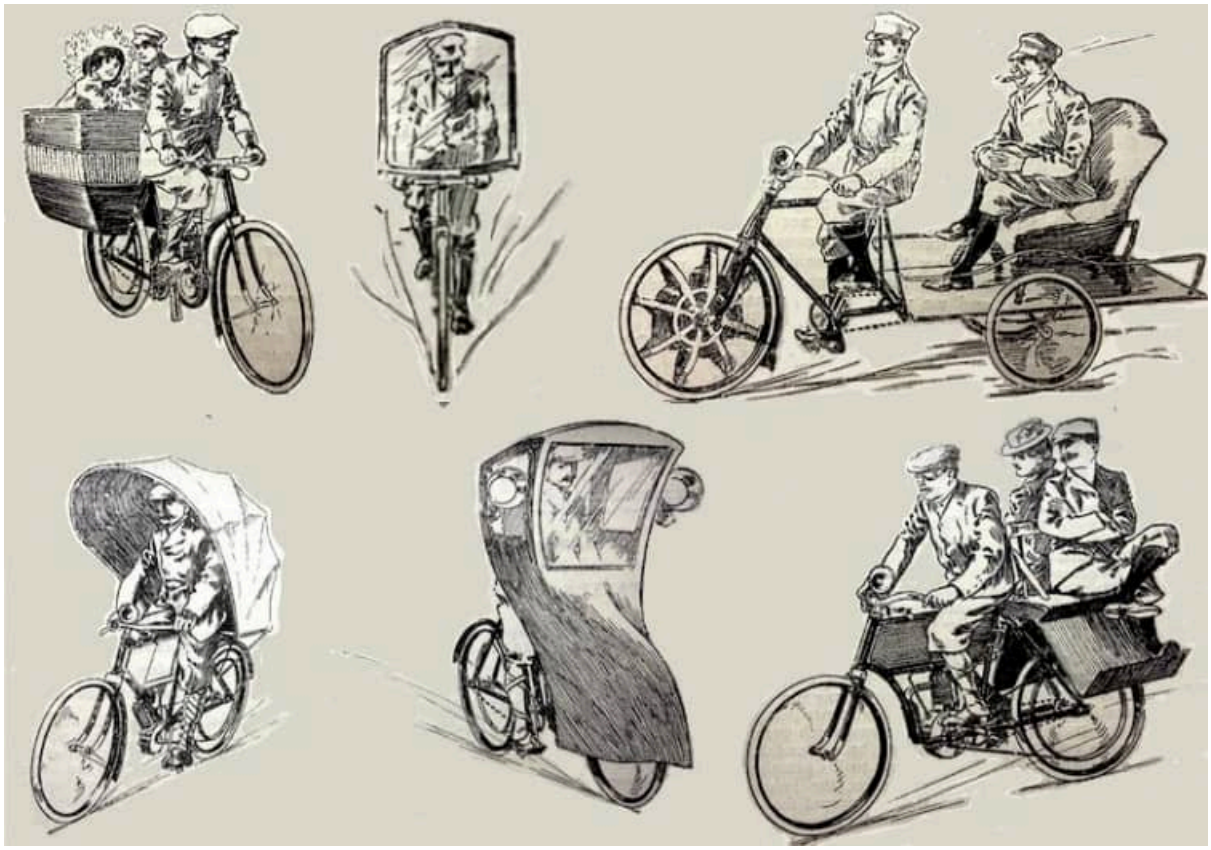
“MR, PEDERSEN, THE INVENTOR of the Dursley-Pedersen bicycle, is turning his attention to the production of a light, powerful motor to suit his bicycle. It will have an impulse every revolution, and if it turns out as predicted, it will be less than half the weight of any motor-bicycle on the market at present. The in□ðuence of his remarkable frame is to be seen in the variety of cross frames, so-called feather-weights, which scale about 22lb. The Pedersen heavy roadster comes out from 15-18lb; this will be a boon to riders who object to pedal an unnecessary dead weight around. The motor possesses many novel points that will be in keeping with this weird machine. The erstwhile Danish dairy farmer certainly showed English cycle makers it was possible to produce a lighter yet stronger form of cycle frame than those in use, and we shall look forward to his motorcycle with much interest.”

“YOU HAVE ILLUSTRATED and described a two-cycle type of motor, for which several advantages are claimed…No doubt its simplicity is very fascinating, but there are several features which render it quite useless for cycle motors, in my opinion. In the □ðrstplace, there is nothing to prevent the engine from running backwards in the case of a late ignition, which might easily occur when running slowly up hill—no for the the unlucky rider! Then again, the problem of lubrication would not easily be solved, as the engine would pump the crank case dry in a very short time. This would also entail constant trouble with the sparking-plug and also visible exhaust. I do not deny that this type of motor can be made to run, and run well, as a stationary governed engine. Such engines have bee made for years, both in this country and in America; but for motorcycles they are inapplicable, in my opinion, at the varying speeds and loads to which a cycle motor subjected.
‘SIMPLEX’.”

“THERE WILL BE NO motor races at Bexhill-on-Sea on Bank Holiday. The whir-whir of the motor will not be heard along the Marina and the fascination of watching the □ðying automobiles will be denied to the expectant visitors at the pretty watering place. Everything was arranged for the carrying out of a full and interesting programme, but on Thursday last, in the Chancery Division of the High Court, a decision of Mr Justice Farwell put a stop to the scheme. The case argued on that day was that of Maynerv s Earl de la Warr, and an injunction was asked for by the plaintiī to restrain Earl de la Warr from permitting motor races being held at Bexhill, on the ground that they interfered with the plaintiī’s enjoyment of his property, which, it seems, adjoins that of the defendant. Reference was made by plaintiī’s counsel to the motor races held on Whit Monday last, and to the large crowds present on that occasion. The racing lasted from noon till nearly six o’clock, and it was alleged that during that period it was dangerous to ride or drive along the Marina, for the noise of the cars was calculated to scare the horses.

“ALCOHOL IS PREFERRED TO petrol by the Continental military authorities for military motorcycles and cars, because in case of war petrol supply could be cut oī, most of it coming from America and by steamers from Russia, whereas alcohol is a home product of the beet and the potato, always at hand.”

“ACCORDING TO AN AUTHORITY on the properties of petroleum spirits there would seem to be no reason why ‘Benzol’ should not answer better than petrol as the fuel for internal combustion engines. At present there is a considerable amount of discussion going on as to the advantages of using alcohol as a fuel. Benzol would not only be greatly superior to alcohol in results but it could be obtained far cheaper. In this country Benzol would be a native product which is not the case with petrol.”



"Motor fantasies by our ever sanguine but wholly irresponsible inventor: The tonneau-back bike: invaluable for families. The wind screen. The cycle lorry—designed for small parties, moving jobs or luggage transport. The weather hood (folds over the rear wheel). The Cabicycle. A private Hansom!! No more unsightly goggles—a death blow to weird garments! The jaunting car back."

"THAT THERE IS A GROWING demand for high-grade motor-bicycles from members of the medical profession there cannot be the slightest doubt. The ever-increasing amount of correspondence we receive from doctors seeking advice as to the selection of suitable machines goes to prove that they see in the motor-bicycle an almost ideal machine that will meet their requirements. Its handiness and simplicity of management are merits that medical men have not been slow to perceive, and in cases where a large country practice has to be dealt with it should form a much more convenient means of getting about than a horse and trap. Then, on the score of economy, the motor-bicycle occupied an in□ðnitely more favourable position than the doctor's carriage. In several of the letters we have received from. medical men they state that since becoming perfectly familiar with their motor-bicycles they have used them very largely in their practice, and have been able to get through a much greater amount of work than formerly, and at a minimum of expense."

"THE USE OF THE MOTOR CYCLE is rapidly increasing in favour with the medical profession, and there is no doubt that as a handy, economical, and convenient method of working a wide practice, the motor-bicycle is unequalled. The Singer Cycle Co sent the follow-ing extract from a letter recently received from Dr Crossley, of Burnley, which illustrates the great practical utility of these machines under the most adverse conditions: "Last Thursday I went up from here to Edinburgh on tricycle, arriving there about 9 o'clock, after a most enjoyable run. I got over Shap Fells in grand style, only having to assist the machine for a short time near the top. On Friday afternoon I rode from Edinburgh to Longtown. On Saturday I consider your machine went through a severe trial. The rain came down in torrents, in fact, it was so bad that in several

places the stream had □ðoodedtheroad,the small arches of the bridge being unable to carry through the quantity of water. For ten hours your machine plugged along, without so much as a mis□ðre.Iconsidera machine able to accomplish such a severe trial impossible to beat."

"THE SINGERCYCLECOhavereceived the following interesting letter from a doctor relating how be used the the motor-bicycle with eīect in an urgent case: 'I think in justice to your machine, I should tell you what it can do for the medical profession. This day week I saw a case of lockjaw in a boy. I wired to several places to see if I could obtain Behring's serum and found I could only get it at a town 66 miles from here, but if it came by post or train I would not get it for 48 hours, when it would he useless; so I mounted the motor and rode oī and accomplished the double journey in 5¾ hours and some odd minutes, so I don't think you need say any more that your motor is only for strength and hill climbing. I am glad to say the boy is now on the high road to recovery,and this fact has had the eīect of making several people take a very diīerent view of motors.'"

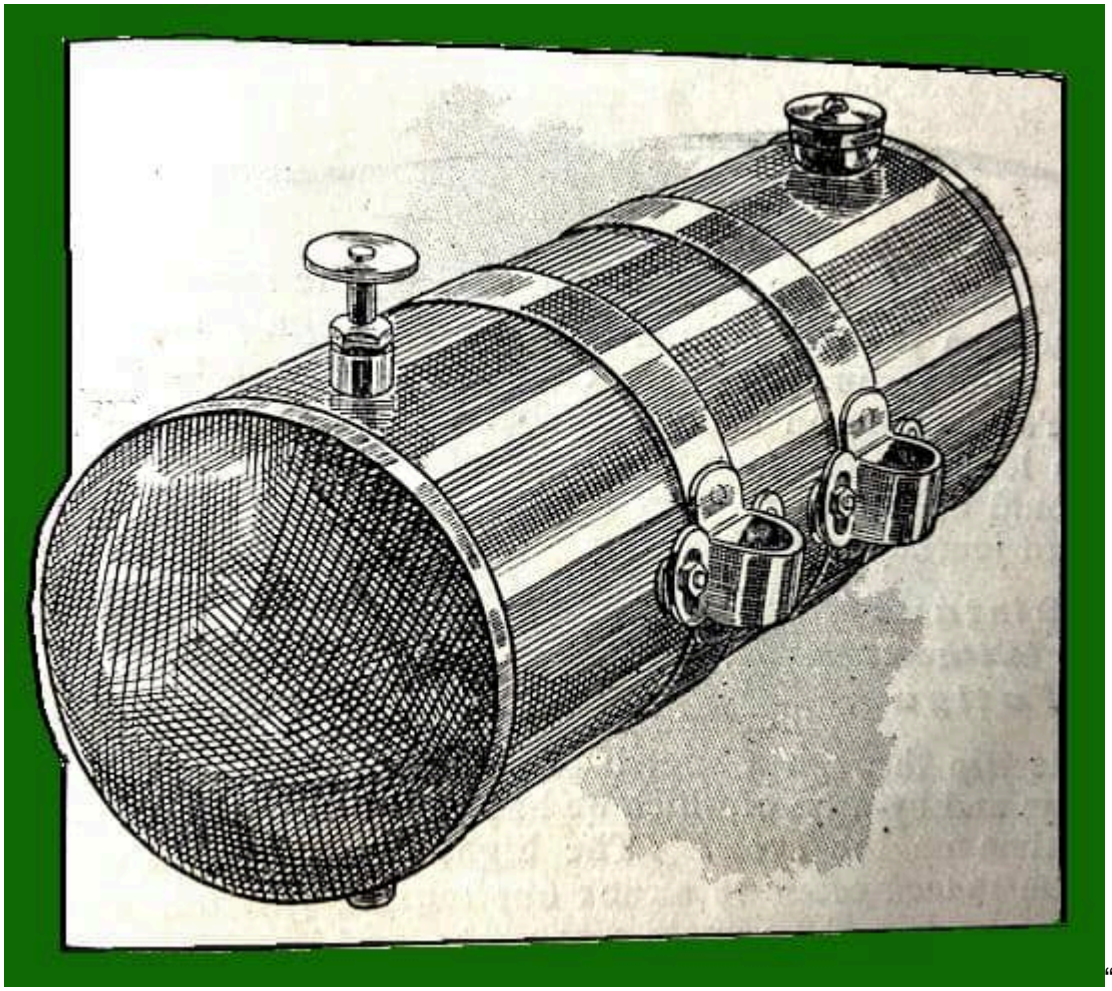
From a local newspaper: "Herewith we reproduce a photograph of Dr Sidney Wigglesworth, of Kirkham, near Preston, on his 2½hp Singer tri-voiturette. The doctor, who is accompanied by his two little girls, speaks very highly of the machine for professional work. 'It has,' he reports, 'been a boon during the recent severe weather.'"

"MY PRESENTBEESTON-HUMBERIhavedriven over 400 miles. On two occasions I went a distance of 50 miles without single dismount. This fact is valuable testimony to the all-round eīiciency of the' machine. Thenwith regardto detail: it is a capital hill-climber, devoid of that

side-slip sometimes met with in other motorcycles; it is a steady and consistent runner; and the vibration, by a skilful distribution of parts, has been reduced to a minimum. The carburation never gives the slightest trouble. The timing gear is one of the most notable indications of careful design, and the electric ignition has never failed in its working. This arises from the fact that no nil is allowed to leak on to the contact breaker. Another good feature of the machine is the ease and rapidity with which the free engine can be stopped. This is especially convenient for those who have many calls to make, and who only travel short distances. It also obviates the danger which arises from frightened horses. Only one sharp pressure on the pedal is necessary to start again, and the motor responds immediately. With a little practice it becomes quite easy connect and disconnect the engine from the pedal—in fact, after a few outings the rider when required uses this means almost, as it were, unconsciously.

Medical practitioner.

"IT IS LIKELY THAT some who are reading Motor Cycling are hesitating whether to purchase a motor-bicycle or not, my experience may be of some use to them. After reading your □ðrst few numbers I came to the conclusion that these machines have now passed well beyond the experimental stage. Eventually I elected to purchase a 1½hp Excelsior. The machine was delivered soon after Easter, and since May I have ridden about 2,000 miles on it. As my district includes the Peak of Derbyshire, and ranges from below 100ft above sea to over 2,000ft I think I am in a position to express an opinion on the question of horse power. The conclusion I have come to is that if a man does not mind doing a little pedalling, 1½hp is quite suīicient. As a matter of fact, as a rule, if my machine fails to mount a hill it is because the belt slips, not because the engine 'gets tired'. To show what a 1½hp bicycle will do, I may say that quite recently I have twice left my house, which is at a level of about 240ft, and made a run of over 70 miles; on one occasion going up to over 1,200ft, and on the other over 1,000ft. On the latter occasion I took a friend in a trailer about 60 miles, leaving him to wait for me while I went on my business which took me over the 1,000ft contour. I can thoroughly endorse the statement of your leader writers that the motor-bicycle is not anything like so liable to skid as the ordinary machine. I have ridden mine in all weathers and have had no diīiculty on this score. To show how easy the machine is to manipulate, I may say I lent it one day to a fellow practitioner who had never been on one before. Between 3 and 6 o'clock he did a round of 28 miles and, I may add, he is a □ðne specimen from the Emerald Isle, weighing over 14 stones. Having thoroughly tested these machines I can recommend them strongly to all medical men who, like medical oīicers of health of rural districts, have long distances to cover. A word about the hygienic aspects of motoring: For the worried man and the brain worker who cannot lay aside his work, a rush through the air on a motor at top speed is invaluable for its exhilarating and tonic eīects, and generally for sweeping away the cobwebs. The concentration required for managing a 1½hp motor when petrol is full on and sparking advanced, leaves no room for the mind to occupy itself with the cares and doubts of daily work. In conclusion, let me congratulate you upon your excellent paper to which I owe my adoption of this useful and enjoyable method of locomotion.
Sidney Barwise, MD Lond, BS."



“The United Motor Industries Co have a capital thing in reserve petrol tanks suitable for motor-bicycles or trikes. It is of cylindrical shape and is made of stout sheet brass, well nickelled. A screw-down outlet valve is provided and the capacity about equals a gallon. The clips for attaching the tank to the frame are adjustable and will clip on to the back forks of a motor-bicycle if they are not cranked in.”

“GAMAGES’ LARGE CYCLE AND motor emporium on the Viaduct is just now very brisk indeed. At times quite a line of cars and motorcycles are drawn up in front. The motorcycle accessory department is growing, and it is a business to get served sometimes with the crowd of purchasers at the counters.”

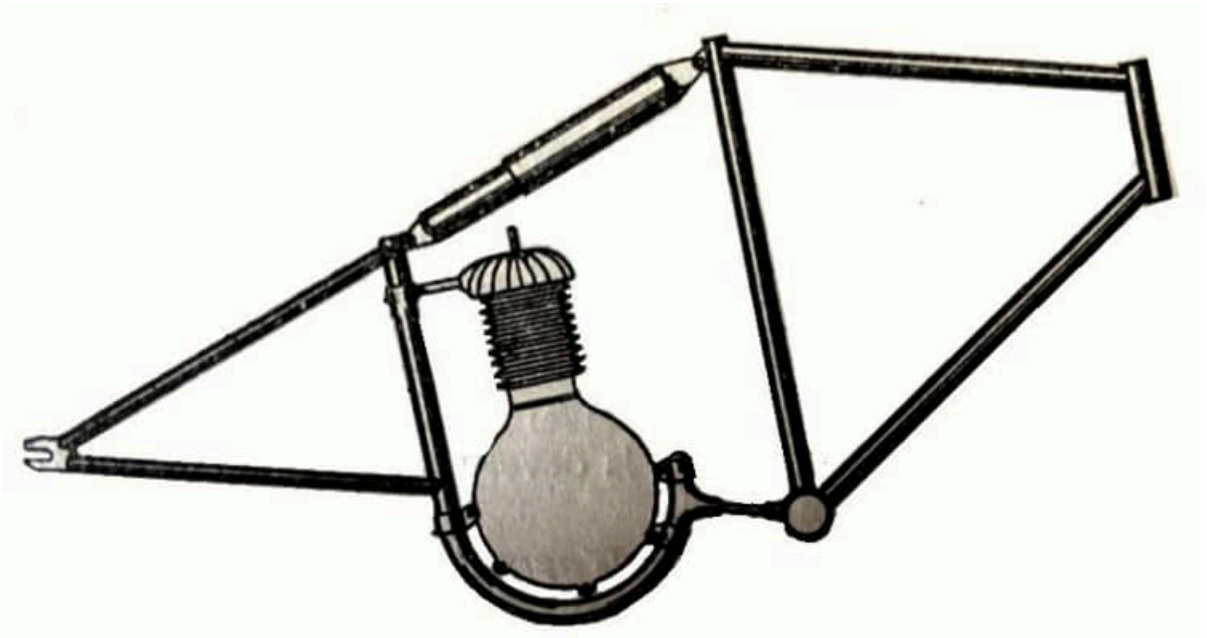
“THE ENERGETIC CHIEF of the Paris Police has provided the chief oïicer of the cyclist detachment with a motor-bicycle so that he may economise time in paying his visits to the various stations throughout the city. Those who have seen him riding the machine say that he evidently takes a very broad view of the speed regulations. “

“SINCE ARNOTT DEMONSTRATED what the new Werner could do in the way of running long distances, thus proving its reliability, quite a little boom in these capital machines would appear to have set in. As showing the good work always put in the Werner engines, one often comes across machines of the old type that have been running three or four seasons and are not much the worse for wear.”

“SILENCER CUT OUTS are popular with some motorcycle matters in the States, and we believe this idea may be adopted by one or two of our own makers for next season. A silencer

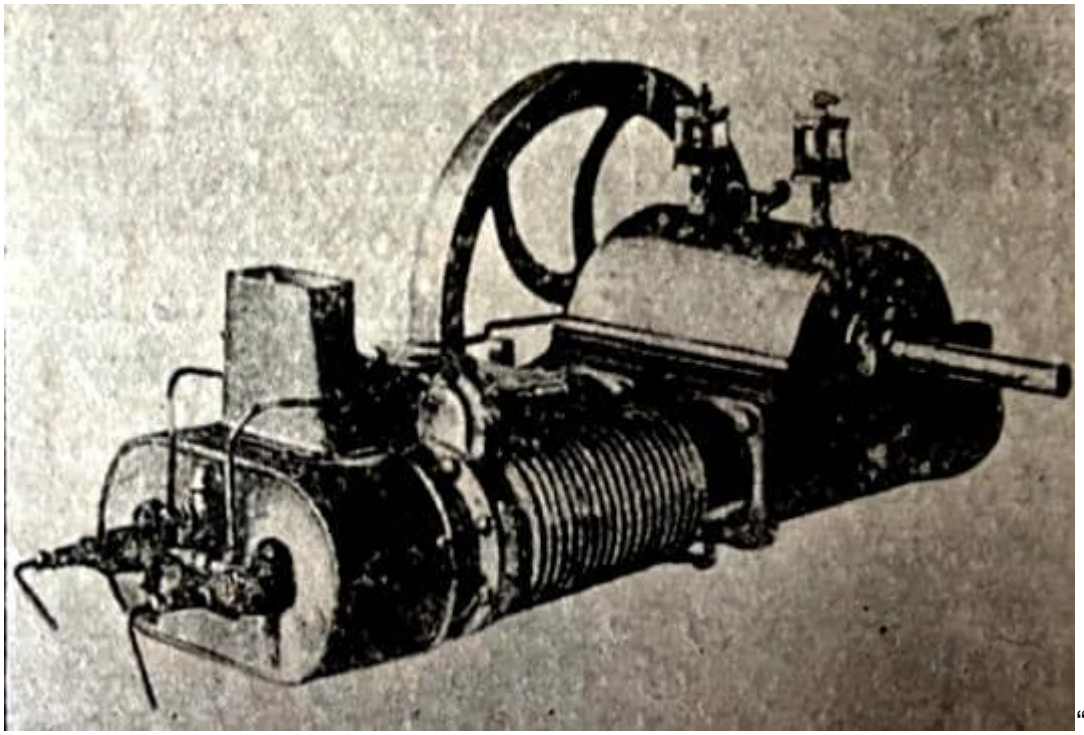
necessarilyreduces the eīiciency of the motor slightly, and it is claimed that with small power motors especially it would be an advantageto be able to exhaust straight into the air and get the extra power for hill climbing when necessary, although the silencer would be employed when on averageroads and passing through towns."

"THE STEELROADSCOMMITTEEoftheAutomobile Club of America is going ahead with its work, which is to put down steel tracks in the city and suburban roads of the States. Steel plates 12in wide will be laid on foundations of broken stone…MrSchwab, the steel king, is furnishing the material for a mile of the proposed road."



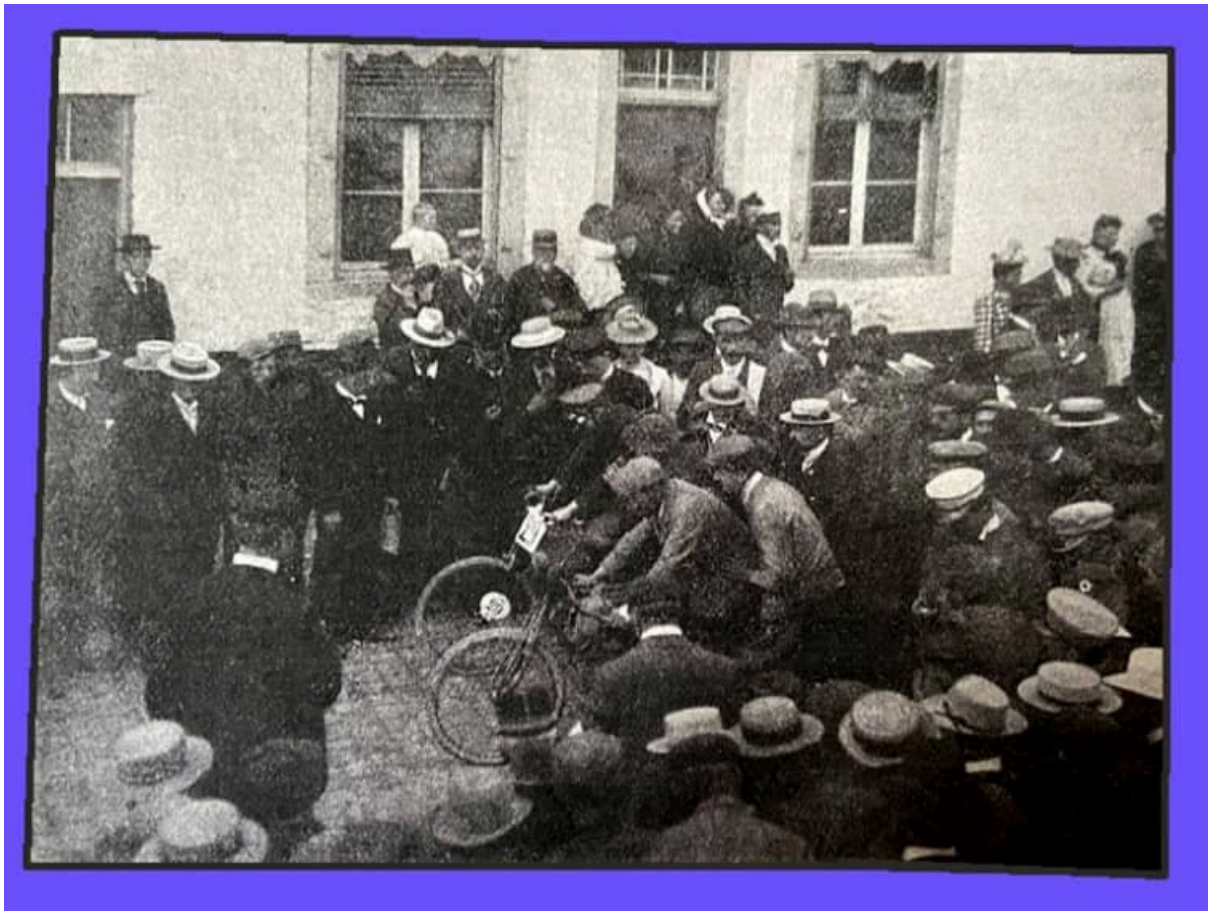
"The illustration shows the principle of an American invention: the adoption of a spring frame for a motor-bicycle. Therear part of the frame is hinged at the bottom bracket and a spring or pneumatic cushion is interposed between the main diagonal and a rear diagonal which forms a loop for carrying the motor in. Thisarrangement, of course; entails a long wheelbase being used, but this, it is claimed also tends to lessen vibration and reduce side-slip." Yes, it's a monoshock cantilever frame, built while the Tommies were battling brother Boer. Who knew?

"THE CHICAGOMOTO-CYCLECO, 107, Madison Street, Chicago, Ill, are making an engine which can be used as an oil engine or a hot air engine. Either paraīin or petrol can be used as a fuel. This is an internal combustion engine without any carburetter or vaporiser, no water cooling and no electrical apparatus for igniting the charge. Themakers claim that it cannot overheat, and that the charge cannot ignite too early or too late. Working as a hot-air engine, heat is applied to the bottoms of the cylinders, air is taken in and compressed in the cool upper end of the cylinder and then transferred through a separate passageto the heated end, where it expands and forces piston outwards. When used as a petrol engine the torch which heats the cylinder end also servesto heat the coil through which the petrol passes. An impulse is obtained at everyrevolution, the spent gas being forced out completely upon the return stroke of the piston. The charge explodes, not against a tight-□ðttingringpacked piston, but against a sliding displacement block which is loose and will not bind if it becomes heated. Each cylinder is 2×4½in, and the engine and □ðywheelweigh280lb. It will develop 5bhp at 500rpm. TheCaloric engine is a radical departure in internal combustion motors and bids fair to become an important factor in motor building."



"An engine which can be used as an oil engine or a hot-air engine."

"AS WAS GENERALLY ANTICIPATED the motor road race which came oī on Thursday last on Belgian territory was a great success, for which the Automobile Club de Belgique may well be proud. The idea, which was entirely a new one, quite caught on; and there is not the slightest doubt that the innovation will be repeated as often as a proper course can be selected, as it does away with all the bother of 'neutralised [non-racing] sections', and, as a result, calculations in which everyone, promoters and competitors alike, gets lost. The idea was as follows: A good, quiet stretch of road was selected in the shape of a 'circuit', starting from a town named Bastogne and coming round there again; said circuit being 65km (53 miles) in length. The race comprised six times round, or 358 miles in all without a stop. The success of the idea is shown by the fact that the event attracted 76 Entries, out of which there were 56 starters including all the best Belgian and French chauīeurs, also several English and German motists…In the afternoon, after the heavy vehicle contest, a race (twice round) was held between motor-tricycles and bicycles, resulting in an easy win for Osmont, in the □ðrst category, and Derny in the second. List of Placings: Motor-Tricycles (2 Laps): 1, Osmont (Dion-Bouton), 2hr 53min 18sec; 2, Joostens (Korn), 3hr 8min 45sec. Motorcycles (2 Laps): 1, Derny (Clement), 3hr 0min 47sec; 2, Arnott (Werner), 3hr 36min 57sec; 3, Masson (Clement), 3hr 43min 52sec."



“Start of the motor-bicycles in the Circuit des Ardennes.”

“HEB (MANCHESTER)RECENTLYpurchasedata sale of cycles an old-fashioned 1897 tube-ignition Werner motor-bicycle. He has managed to get it to run at 12 or 14mph on a good level road, but he understands that electric ignition could be □ðttedandthiswould improve its power very much. Could we give him instructions how to proceed; he has a lathe and plenty of tools. We regret that we could not spare the space to do this at present, but we should advise him to study pretty closely the way the ignition is □ðttedonanup-to-date motor, and he should be able to work the details out for himself.”

“THEREHASBEENSOMEmisapprehension lately as to whether the Automobile Club controls motorcycle events. If pedals are used after starting the competition will be under NCU rules; but if pedals are not to be used the competition must be held under Automobile Club rules, machines and drivers registered, and the competition rules of the Club in all respects complied with.”

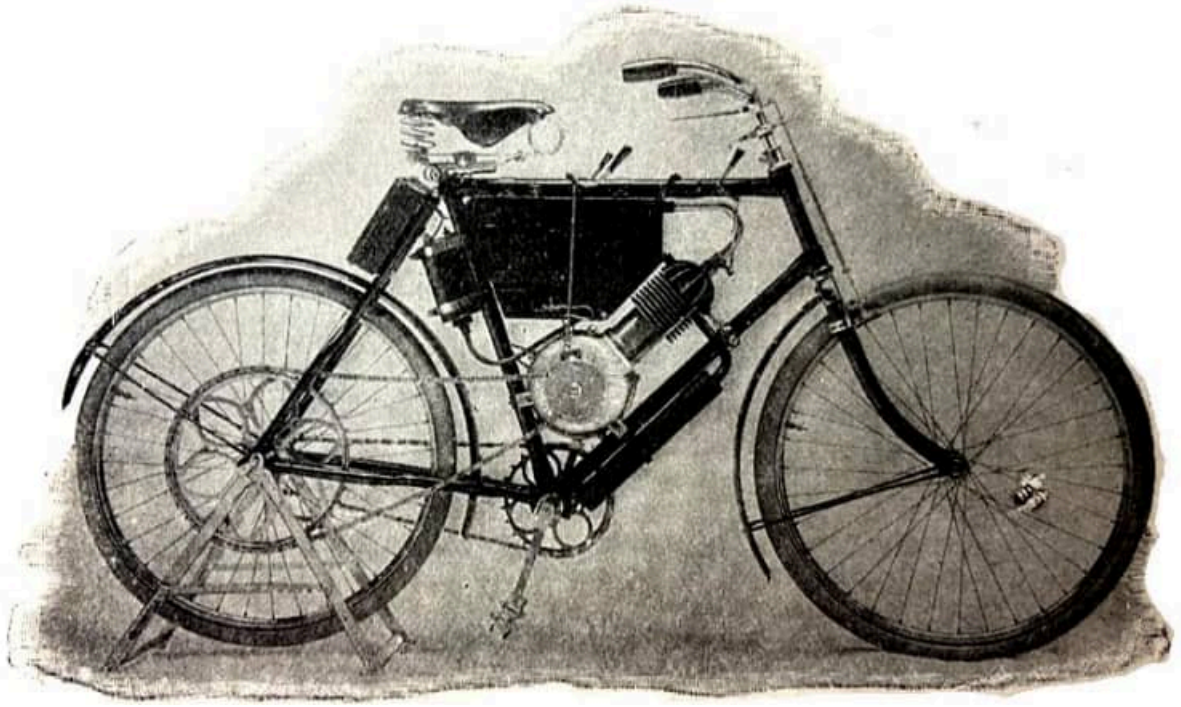
“MANY MOTORCARSAREnowbeing □ðttedwitha dust and wind screen, which consists of a celluloid window □ðxeduprightonthe front of the car. With this □ðtted,thereseemsno necessity for the occupants of the car to wear hideous face masks.”

“IT HASBEENDECIDEDto form a motorcycle club in Liverpool, where there is plenty of scope for such a step. Local riders wishing to join should communicate with either Mr WJKirkland, 11, Lord Street, Liverpool, or Mr Lancaster, manager for Alldays and Onions, Renshaw Street, Liverpool. It is the intention to form the club solely for motorcycle riders.”

“A FINE‘GATE’WASattracted to the Memorial Grounds, Canning Town on Monday, where the Thames Ironworks C&AC carried out an excellent programme including cycling and motor cycling races. In the □ðvemilesmotorhandicap FW Chase, on scratch, did a grand performance, covering the □ðvemilesin6min 10sec., which is record for standing start. In the course of the race he covered a mile in 1min 9⅖sec. H Martin. 30 yards, was second, a lap and a half in the rear; HA Collier, 1 min., third. Chase afterwards did a □ðvemilesspin, □ðyingstart,in the world’s record time of 5min 50⅗secs., which was 54⅕sec less than his previous best of 6min 44⅗sec. In the □ðvemilesscratchChase was a non-starter, and the event fell to H Martin, who won nicely from HA Collier, time 7min 3⅖sec. During the afternoon AA Chase, paced by his brother on his motor-bicycle, broke his own record, covering the □ðvemiles, □ðyingstart,in7min 7⅘sec.”

“Start for the □ðvemilesmotor-bicycle scratch race at Canning Town on Bank Holiday. (Right) Chase adjusting his motorcycle preparatory to starting at Canning Town.”

“THE PRINCEPSMOTOR-BICYCLE,madebythe Princeps Autocar Co, Northampton, is a machine possessingmany distinctive features in its construction, and, moreover,one that is symmetrical and compact in its design and of moderate weight. Thespecial features are the chain drive, clutch transmission, and a free engine at will. Themotor is placed in an inclined position inside the frame and is rigidly clamped by the crank case to the main and diagonal tubes; there is also an extra clamp from the top of the cylinder to the main down tube. This system strengthens the frame and relieves any strain on the bracket joints. Thepower claimed for the motor is 1¾hp. Special radiators are □ðttedtothecombustion chamber for oīering the maximum cooling eīect to it and the valves,and also to keepthe heat as far as possible away from the rider. Thecrank case has no sharp corners and presents a neat and smooth appearance. Thesilencer is an eīicient double-chamber type and is seen □ðxedparalleltothe down tube. Thetransmission of power from the motor to the rear wheel is by a roller chain running on to a large diameter chain wheel screwed on to the hub. A carefully designed cone friction clutch is interposed between the motor axleand small sprocket, and this counteracts any shock or strain being transmitted when the motor is running at a slow speed. A lever passes down from the horizontal tube to the clutch. Thisis for throwing the clutch gradually into gear, and allowing a certain amount of slip when starting and full engagementwhen speed is attained. Another advantageis that a complete disengagementof the

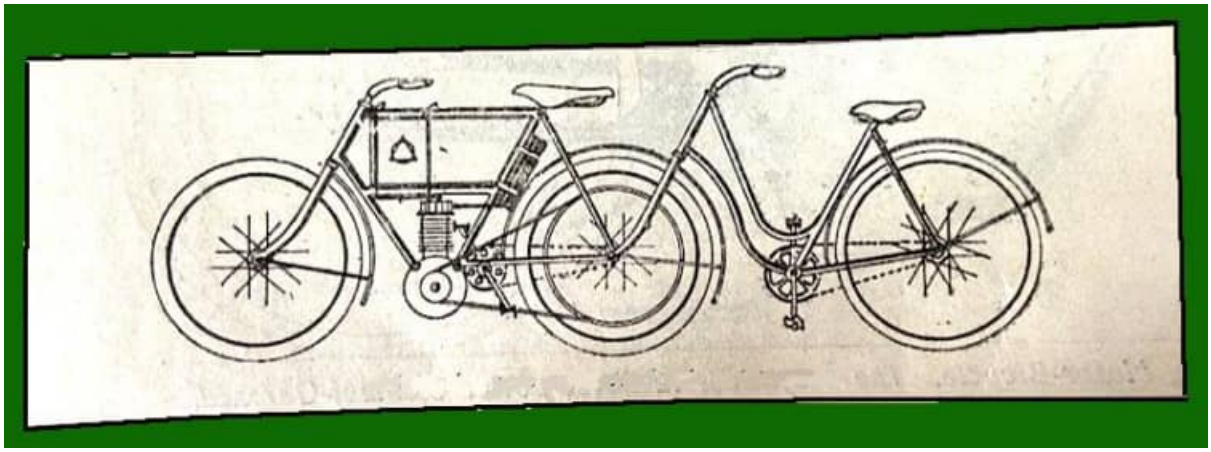


“The Princeps motor-bicycle.”

clutch allows the engine to run free when coasting hills or in traïic, and also enables the engine to be started before the rider mounts if so desired. This is readily done by putting a turn or so of stout cord round the drum and giving it a smart pull. As the engine can be thrown out of gear no exhaust lifter is necessary, simply a compression tap, for starting…The female part of the clutch is secured to the engine shaft. The male part, carrying the chain wheel, is held in engagement by a spring, the base of which is seated on a ball bearing. Disengagement is eïected by means of a lever operated by a handle on the top tube of the bicycle. The movement of this lever in□ðuences the full or partial engagement of the clutch, and a slip drive or a rigid drive is perfectly under the control of the rider. When the handle is pushed over to its furthest extent the engine is thrown out of gear and runs free…In addition to the front rim brake a Bowden rim brake is □ðttedtothe back wheel and is actuated by a lever on the right handlebar. The carburetter is a very eïicient form of the surface type, but a spray carburetter can be □ðttedwhendesired.A good supply of petrol can be carried, and □ðoatindicatorisprovided. Lubrication of the motor is eïected by means of a small force pump. This is □ðttedinasmall detachable reservoir □ðxedtotheside of carburetter tank, and can be used whilst the machine is running…An actual trial of the machine proved that it justi□ðestheclaims made for it. It goes up hills well, and for a chain driver it is very free from vibration. The speed can be regulated by the mixture and throttle valves and spark advancer. The Princeps Co add: ‘All through the past season our machines have been □ðtted with, not a starting handle, certainly, but a leather starting thong if the engine to be started before the rider mounts, if desired. The thong has an advantage over the handle in that it can be carried in the waistcoat pocket. We have not discarded pedals in any standard type, but with our free engine □ðtments and variable gear we have proved that they might be dispensed with, as we have ridden long distances only using the pedals as footrests. We should have oïered a machine this year without pedals, but for popular prejudice. We were the □ðrstmakerstoput chain-driving on the market commercially, the □ðrsttoprovide a free engine, the □ðrstto□ðta compensating chain wheel, and now we are the only makers □ðttingavariablegear and free engine for belt drive. We have therefore done our share in overcoming popular prejudice, and we shall leave the abandonment of the pedals to the public.’ I made a point of seeing their new

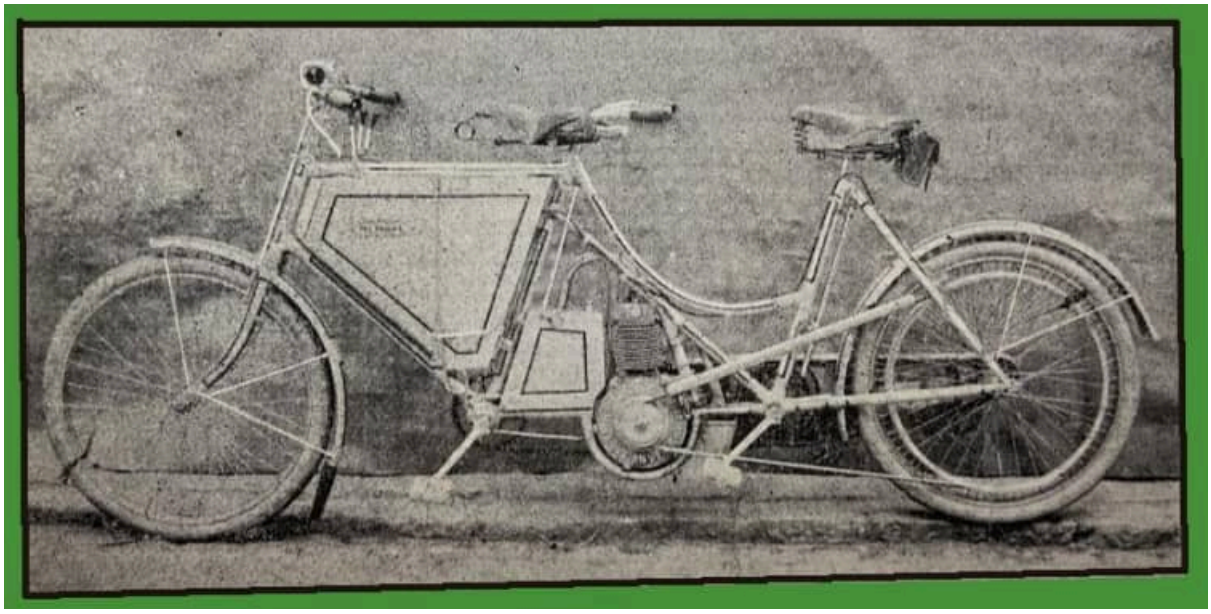
variable gear pulley at the Show, and was so struck with its simplicity and apparent eīicacy that I decided to specify it for my 1903 machine. The principle is very simple. One side of the V-shaped pulley is □ðxed to the axle shaft, and the other side can be moved outwards relatively to it to the extent of nearly half-an-inch, the movement being controlled through Bowthn wire mechanism. When the two parts of the pulley are close together the belt is forced to ride high up in the groove, and this gives the gear, whilst, by gradually opening out the gear can be lowered."

"FROM THE ILLUSTRATION [below] it will be fairly clear how an ordinary cycle can he attached to the rear forks of a motor-bicycle, thus making a tandem or forming a convenient trailer. The width of the rear hub of a motor-bicycle is generally greater than the front forks of the cycle, hence it will be necessary to have these set out so as to □ðt over the axle ends. It would also he an advantage to strengthen the fork ends, as the connection must be perfectly rigid and secure at this point."



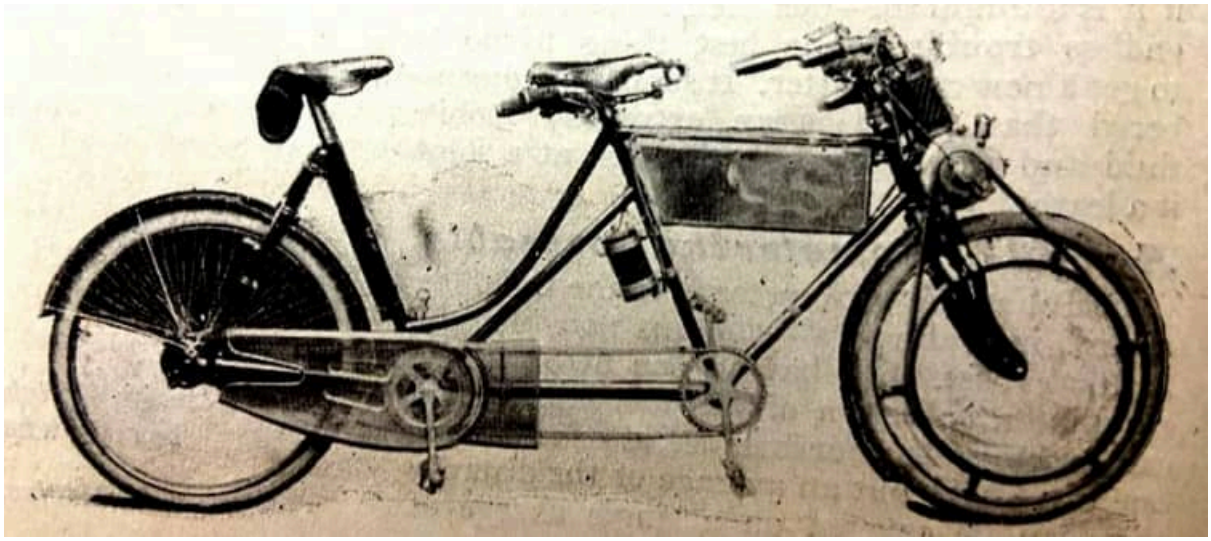
"Motor-bicycle converted into a tandem."

"THE ILLUSTRATION SHOWS Mr Van Hooydonk's latest New Phoenix tandem with drop rear frame. The motor is 70x70mm and is set vertically in a loop of the bottom tubes. The pedal gear chain passes under a ball bearing jockey pulley so as to be clear of the contact breaker. Extra large petrol capacity is provided. The control levers are □ðxed in a convenient position forward on the top tube. A Bowden brake is □ðtted to the rear wheel and a powerful rim brake on the front. The transmission is by a twisted hide belt; a guard is provided so as to clear the dress of a lady rider. This is a type of machine that, in our opinion, should become very popular."



"The New Phoenix motor tandem."

"THE MOTOR TANDEM MADE by G F Heath and Co., 123, Holloway Head, Birmingham is □ðtted with a 2hp Werner engine with patent friction clutch and will take two riders 24 stones weight at over 25mph. It will climb hills very well and is faster than many motor singles. The steering is good, and it is quite easy to ride hands oī. The long wheel base renders it very safe on greasy roads, and it is a very convenient type of machine for a lady to take the rear saddle. In fact, the makers claim that a lady unable to ride a bicycle has done several hundreds of miles on one of these machines."

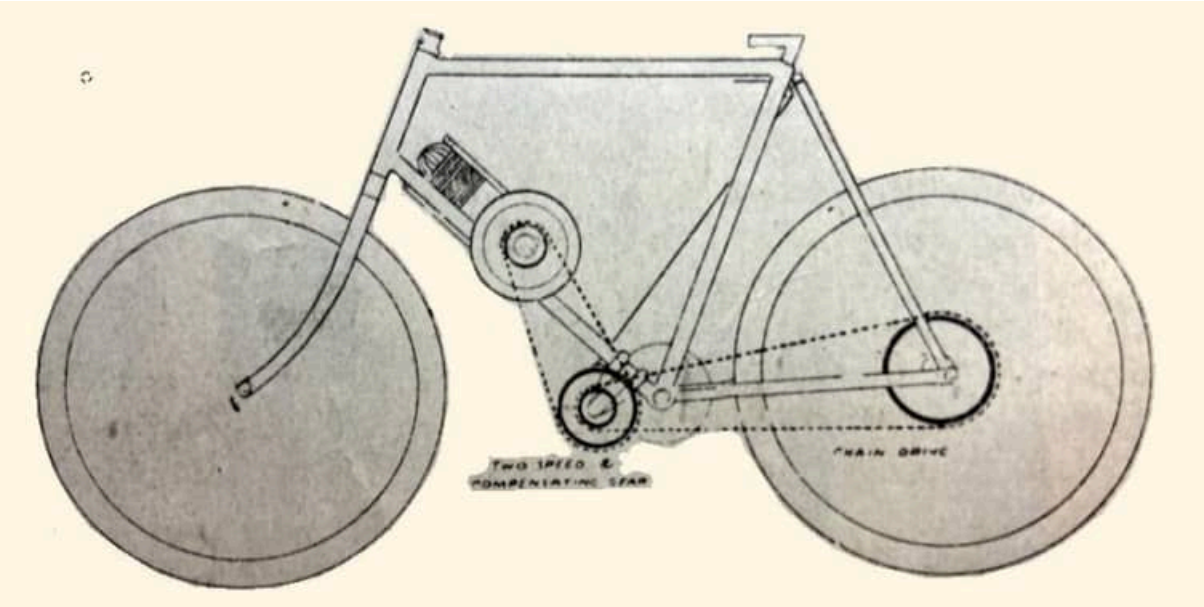


The Heath tandem carried its Werner engine in the original position.

"THE RESULT OF THE FIRST motor-bicycle endurance contest between Boston and New York, and got up by the Metropole Cycling Club of New York over 254 miles, will undoubtedly have an important bearing on the movement in the States. There were 32 machines entered, and of these 17 succeeded in reaching Hartford, just half way, and of this number 13 got in to New York. The roads were in a most unfavourable condition, and a number of the competitors had to discontinue owing to damage to their machines through falls. As might have been expected, the successful machines were those made by □ðrms who had plenty of experience and were □ðrst in the market. The general opinion is that the test was a successful one, and the winning machines

will get an excellent advertisement. The competitors represented all the well-known American types. Seven riders went through without losing any points at each control. These were GM Holley (2¼hp Holley), GM Hendee (1¾hp Indian), GW Sherman (1¾hp Indian), 0L Pickard (1¾hp Indian), NP Bernard ((2¼hp Columbia), LH Roberts (3hp Orient) and WB Jameson (3hp Orient)."

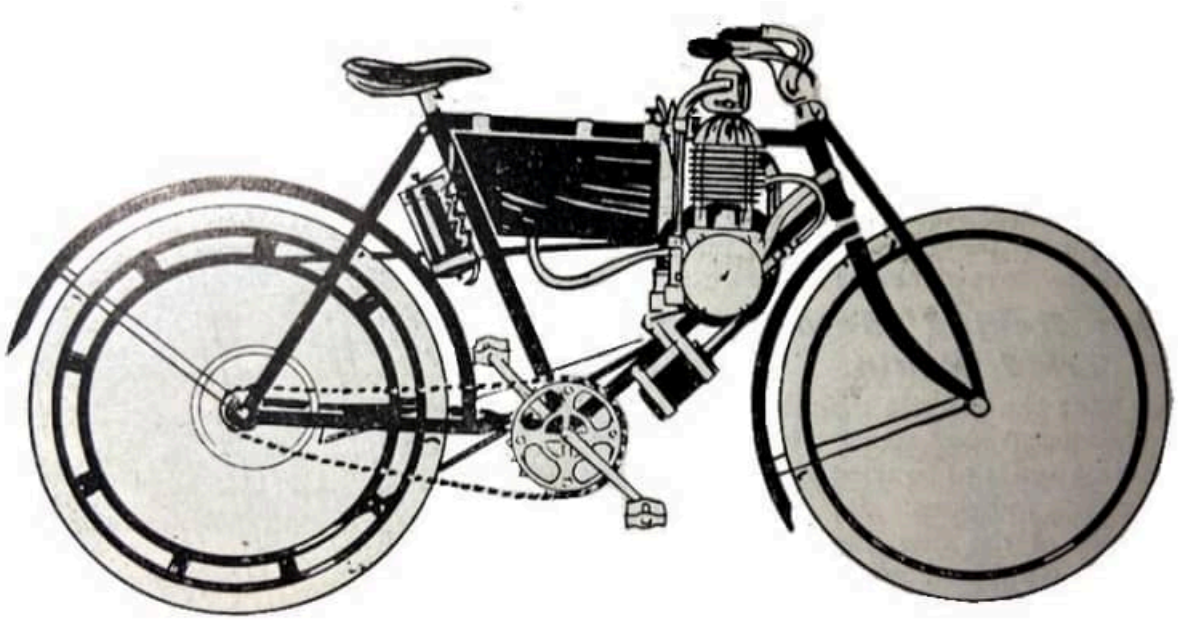
"AFTER MANY EXHAUSTIVE experiments Clement-Garrard have adopted a really eïicient two-speed gear and chain drive. With this □ðtted, their small touring motor is capable of climbing steep gradients as easily as a much higher powered machine. It will be observed that the motor is □ðxed in the standard Clement position, but instead of driving by a belt on to the rear rim, a chain runs from a sprocket down to the two-speed gear and compensating device which is □ðtted just past the bottom bracket. The wire for changing the gear passes to the seat pillar, and then along to the forward end of the top tube to a □ðngerlever. A spring compensating device is also arranged within the two-speed gear to take up the shock and vibration of the engine. Instead of a belt, another chain runs from the two-speed gear to a large chain wheel on the hub of rear wheel and on the opposite side to the pedal drive. The go-ahead □ðrm have something excellent in their new two-speed gear. It is remarkably compact and eïicient, and will enable a spring compensated chain drive to be adopted, thus getting the advantages of the belt and chain. Moreover, no setting out of the rear stays will be necessary, because the chain drive will run from the crank to the back wheel sprocket on the opposite side to the pedal drive."



Clement-Garrard came up with a two-speed transmission incorporating a cush-drive. And nine years later, when two-speed Indians scored a Senior TThat-trick, British manufacturers rushed to □ðttwo-speed transmissions…

"THE CONSTRUCTION OF MOTORCYCLES becomes more and more original; heavier frames and more powerful motors are used, not only to quicken the speed, but to improve the construction and to facilitate riding over rough roads. The Davis motorcycle carries its motor much more to the front than is usual, mainly to balance the weight over the whole frame. The frame is a little larger than that of an ordinary cycle, making the handling of the machine easier when turning corners and going downhill. The construction of the frame is calculated to easily bear all strains, and the resistance and shocks of rough roads are met by a specially devised double front fork which will prevent any breakdown or accident caused by a strain on the front part of the machine. The Star motor No 3 is larger thin other motors of the same make and has

two eīective horse power. The motor has three handles, one for the air regulation in the carburetter, the other for advancing or retarding of the electric ignition, and a small one for the exhaust valve for starting and stopping the machine. The motorcycle's weight when fully equipped is about 98lb, and the maximum speed to be obtained is 37mph. The cycle will run up and down hill without assistance of the pedals, which have only been retained to start the engine. The vertical motor has a cylinder bore of 2¾in and makes 1,500rpm. The ignition is electric; the electricity is supplied by an accumulator which □ðndsroombesidesthepetrol and lubricating oil tanks. The rear part of the motorcycle is fairly free, and can be made useful for carrying a considerable amount of luggage. The motor is nearly silent when running, and the machine can be easily stopped by means of two strong brakes—an ordinary handle lever brake in front and a Noel band brake on the rear wheel. The machine is a typical French motorcycle, speedy and comfortable; its constructors are Messrs Felix Fournier and Knopī, 103, Rue Lafayette, Paris."

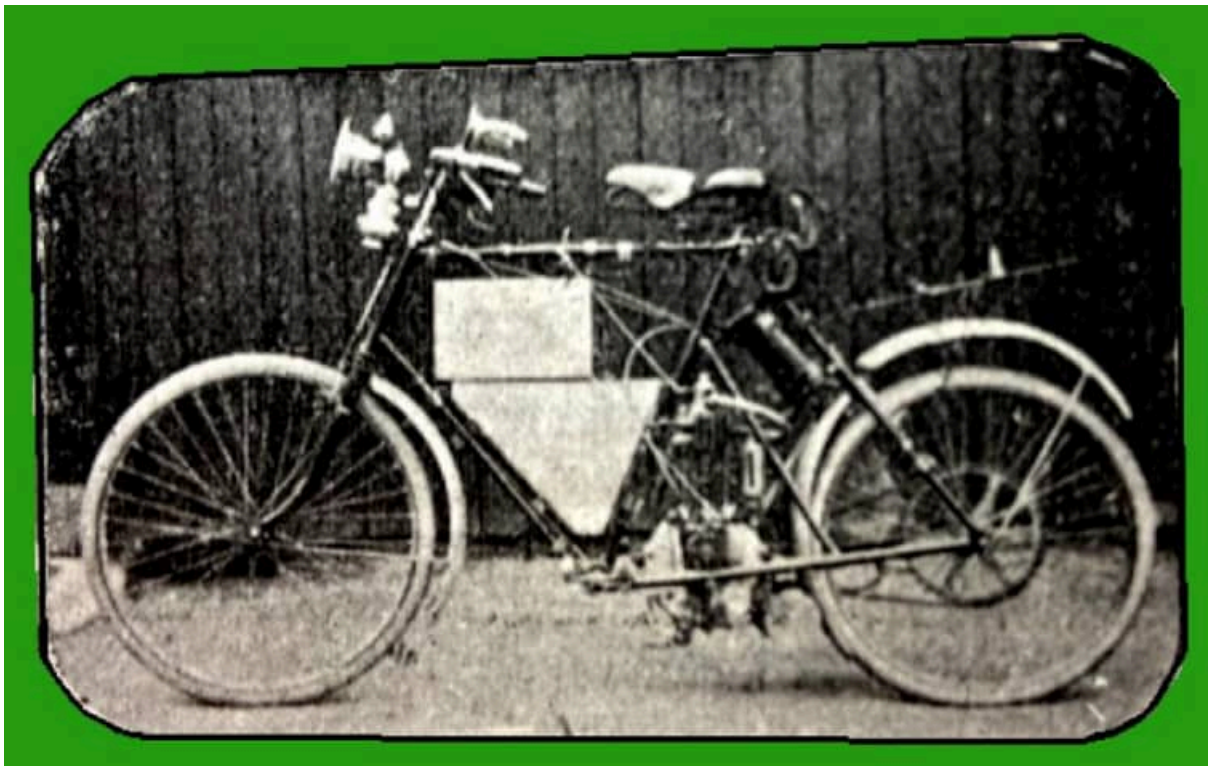


"The Davis motor-cycle."

"I GOT THE MOTOR FEVER early in the year. I tried □ðrsta 2hp Rex, which I found a very well designed machine and stable to ride but still not quite powerful enough for my weighs —13½ stones—on our steep hills, many of which are 1 in 8 and even 1 in 5. I next bought a Quadrant, which I found was an excellently made machine, but its narrow pulley and rawhide BELT seemed to handicap it for our stiī roads, although on average roads it ran very well indeed. Not being able to get a 2½hp Quadrant nor any other English make for several weeks of suīicient power, I bought an Orient, with a 2¾hp actual Astor engine, from the Remington Automobile Agency, in London, and then my real pleasure began. I have now accomplished nearly 3,000 miles on it, chie□ðy with a trailer attached, and it has not once failed to bring me home in proper style; a nicer □ðnished, more rigid, or better designed machine I have not seen. I had to get a less pulley on the engine, the pace was more than I could stand; this, too, gave me still more power on the hills. I have lent the machine to a good many people who never rode a motor before, and they without exception managed it straight away and without trouble. I am now like a boy at school who had the plum cake sent, and I have many friends. Not a screw, nut, or any part of the machine has given me any trouble. In 19 out of 20 times it will start well out of the shop, and it has a spray carburetter □ðtted. The drive is by means of an inch-wide □ðat belt on □ðat pulleys, and

if the belt is kept properly tensioned and nicely dressed with castor oil it makes a splendid elastic drive; a jockey is seldom required, although an excellent one is □ðtted;afewdrops of Venice turpentine on the belt ensures a certain drive on the wettest roads. Theactual amount of petrol used is one gallon for 60 miles with trailer on hilly roads, or 75 to 80 without trailer, and on comparatively level roads 10 miles might be added in each case. A good deal of nonsense is talked about side-slip; I have ridden over wet limestone roads, which are as slippery as an eel, and over wet sets, and I have not found the Quadrant, Rexor Orient any more diīicult to keep up than an ordinary cycle.
Thos H Harper, Settle, Yorks."

"SIR,—ASI HAVEBEENUSINGa 2¼hp De Dion-engined machine for the last year of so, on which I have ridden just on 5,000 miles, I thought you might like to hear my experience. The machine in question has De Dion engine, 2¼hp and carburetter, and is driven by a twin roller chain, geared by 5 toothed sprocket to 36 toothed rear wheel. Thecountry about here is very hilly, and in the spring I was riding a great deal round Dolgelly in Wales, and could climb most of the hills there. When the engine is just going to refuse I jump oī, and the machine pulls me to the top while I walk alongside. Themachine has no pedals. It will do anything from 3-36mph. But with regard to high-powered motor-bikes, my opinion is that the extra power is wasted on the level (unless you have a strong head wind), because it is unnecessary. In my case the weight is also a handicap when going uphill. With a two-speed gear, of course, all this would be to great extent recti□ðed.Theextraweight when going fast on the level also adds rather to the vibration, but if I had larger tyres □ðttedthiswould, I think, stop. With a good roller chain you never, unless driving very, very slowly, say uphill and with full gas, feel the impulse of the motor.
'Salopian'."



'Salopian' covered 5,000 miles in a year on his 2¼hp De Dion.

"SIR,—I SAWA LETTERina recent number of Motor Cycling from a reader signing himself 'Pietermaritzburg,' Natal, to he put in correspondence with a maker who anticipates

manufacturing steam bicycles…Iam shortly placing on the market a steam tricycle which I have designed and built, and which I am now giving a thorough test over all kinds and conditions of roads. I have already covered about 300 miles, and it has given very good results indeed; but I am going to give a thorough test to put the thing beyond dispute, as regards speed, power, steadiness and silent running before placing same on the market. I have also under way an idea for a steam motor-bicycle, but this is only in an experimental stage as yet…Iconsider a tricycle better than a bicycle under the conditions 'Pietermaritzburg' states—rough roads, etc.
W Bravery, Upper Grosvenor Road, Tunbridge Wells.

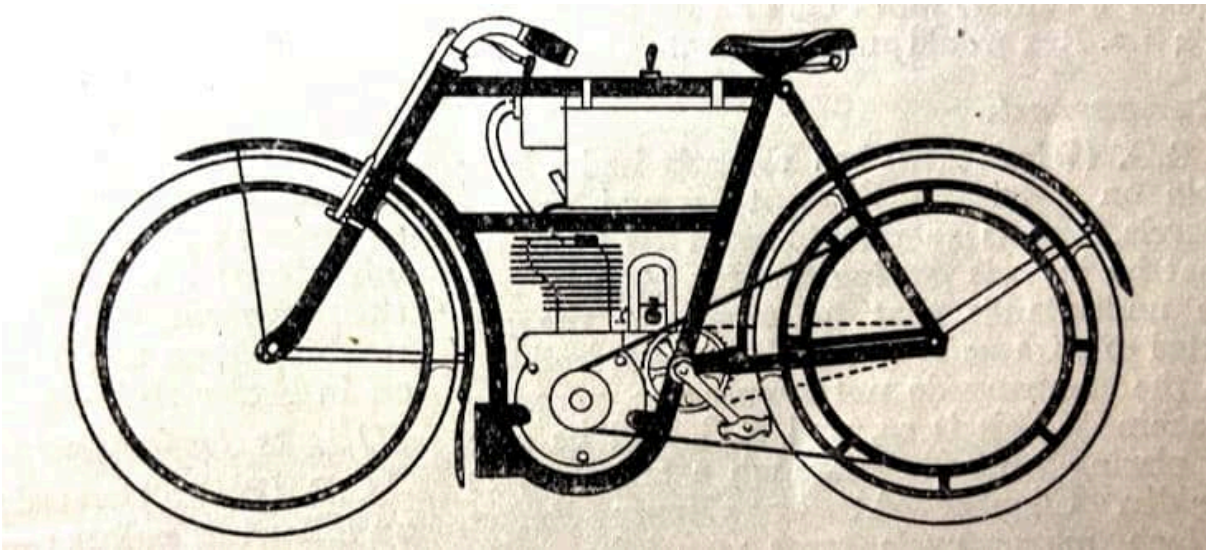
"VERYLITTLEHASBEENheardlately of the Wydts catalytic ignition which was to have ousted the electrical system. Evidentlysome practical diīiculties havegot in the way of its application. But some particulars are to hand which would seem to show that at least one experimenter on motor matters in Francehas got a successful catalytic ignition and is reputed to haverun 2,000 miles with it □ðttedtohismotor. Thearrangement he adopts is a remarkably simple one. He places across the points of the sparking-plug a very small spiral of □ðnerhodium-iridiumwire. A small dry battery is connected up to the spiral and a switch is provided for cutting oī the electric current as soon as the motor is started. Thecurrent raises the spiral to a white heat and this □ðresthe□ðrstcharges,andthecurrent is then cut out and the spiral automatically becomes raised to a white heat by the compressed gases at each impulse stroke."

"A 14HP MOTORCYCLEINchargeof the sprinter, Marius Thé, covered the distance of 300 metres on the Paris Buīalo track, in three-□ðfthsseconds. Thespeed amounts to 93km 10.3m—58mph—and is a record speed for motorcycles. Demesterheld hitherto the record for the distance with 52sec per heat—56mph—which were ridden on a less powerful machine.

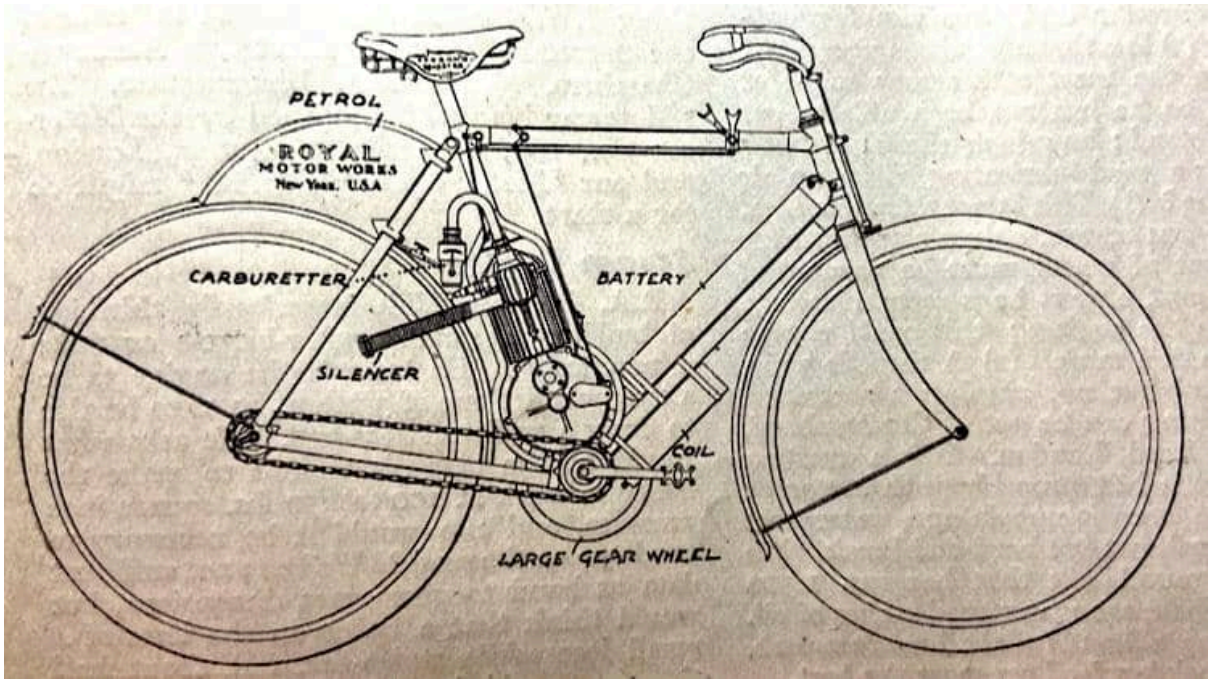
"THE FAMOUSCOLUMBIAbranch of the American Cycle Manufacturing Co have made a big hit with their motor-bicycle. Theworks cannot keep pace with the demand, although 600 hands are employed working full time, and the machines are sold as fast as they can be turned out. The Columbia bicycle has perhaps the best reputation of any make in the States, and their motor-bicycle ought to be a good machine."

"A DIFFICULTYISSOMETIMESexperiencedin getting the tyre cover oī the wheel in the event of a puncture, for the simple reason that it is not always possible to turn the machine upside down, as can be done with an ordinary pedal cycle. To get over this it seems that something in the way of an extremely compact and telescopic stand must be brought out by some of our accessory □ðrms. Itneedonlybe suīiciently strong to jack the rear or front wheel oī the ground and keep the machine steady, and enable the cover to be got oī easily. Something made in steel tubing and which could easily slip on the axle ends and. above all, not be heavy or take up much space, should have a good sale."

"THE IDEALMOTORCYCLEismade by W Bravery, Upper Grosvenor Road, Tunbridge Wells. The motor is 2hp with Simms-Bosch magneto ignition and timing lever. A special form of corrugated non-slipping pulley is □ðtted,andsprayor surface type carburetter as desired. Theframe is a new registered design, rigid and strongly built to stand vibration and the strain of the motor. The driving rim is well stayed to the rim of the rear wheel with eight arms. An eīicient silencer is □ðttedtothelower forward part of the frame. One of these machines has been run 1,000 miles with excellent results. Automatic lubrication and petrol capacity for 200 miles is provided, and also good mudguards and brake equipment. Theprice complete is £42."



“THE ROYALMOTOR-BICYCLEasmade by the Royal Motor Works Co, New York, possesses some novel features in its design and equipment. Themotor has vertical V-shaped radiators of hollow section and open top and bottom. Theseare of sheet copper, brazedon to the cylinder, the idea being that the air is forced and drawn into the tubular radiators by the combined forward movement of the machine, and the tendency of the heat from the motor to rise and create an up draught, hence an excellent cooling eīect is obtained. Theseat post of the frame branches out into four smaller tubes, and these form a loop and reunite at the crank bracket. Inside the loop the motor is well clamped. Thetransmission of power is by a pinion reducing gear, and thence by a chain on to the rear sprocket. Theclutch is □ðttedatthecrank bracket. The petrol tank is of curved shape, carried over the rear wheel. Thespray carburetter—or, as it is termed in the USA‘the atomizer’—isplaced vertically just behind the top of the motor cylinder. Thepointer seenon the front is for regulating the supply of petrol, and it is claimed that once this is set it is unaīected by atmospheric changesor road vibration. Low gradesof petrol can also be used. Thesilencer is made on quite a now principle. It consists of an iron tube 12in long and one inch in diameter, projecting outwards from the exhaust chamber. It is closed at one end, and is drilled throughout its length with small holes, then over these iron or nickel wire is wound. Thegaseshavethat to sift their way through between the coils, and thus a very eīective dissipating of the pressure and silencing is obtained. Thebatteries (dry cells) are carried in a long cylindrical case □ðxedtothedowntube, and the induction coil is placed right below this. Controlling is eīected by the two levers set forward on the horizontal tube; one is for hiring up the exhaust valve for starting or pedalling, and the other for advancing or retarding the ignition spark. Theswitch is in the left-hand grip of the steering.”



The Royal motor cycle sported a fuel tank on the rear mudguard along the lines of the 'camel-back' Indian.

"RAB (Doncaster) invites further experiences with the Werner surface carburetter. Mine has run remarkably well for two seasons and is made as follows: Round the gauzebox are two folds of the ordinary packing cloth, over this are two folds of the sponge cloth used for cleaning bicycles. To prevent air getting in at the top a piece of ¾in-wide tape is tightly bound. In warm weather this runs well with half inch of petrol in the carburetter only; in cold weather this is generally one inch deep, and I have started away with a sharp frost, the warm air not coming into operation for 100 yards or so. I am never troubled with stale petrol; the machine starts oī at once, even after standing a week. My machine is now in its third season and running splendidly.
TF Hunt."

"WG (CHELSEA) IS ABOUT to place an order for a Minerva engine to be ðttedtoa BSA frame, and wishes to know if he is safe in doing so. He requires the machine for Kentish and Surrey roads, and to draw a trailer occasionally. We think WG will ðndthecombination excellent, but it would be well to get the 2hp engine if the roads are hilly. The vibration of the higher power would not be noticeable to any extent."

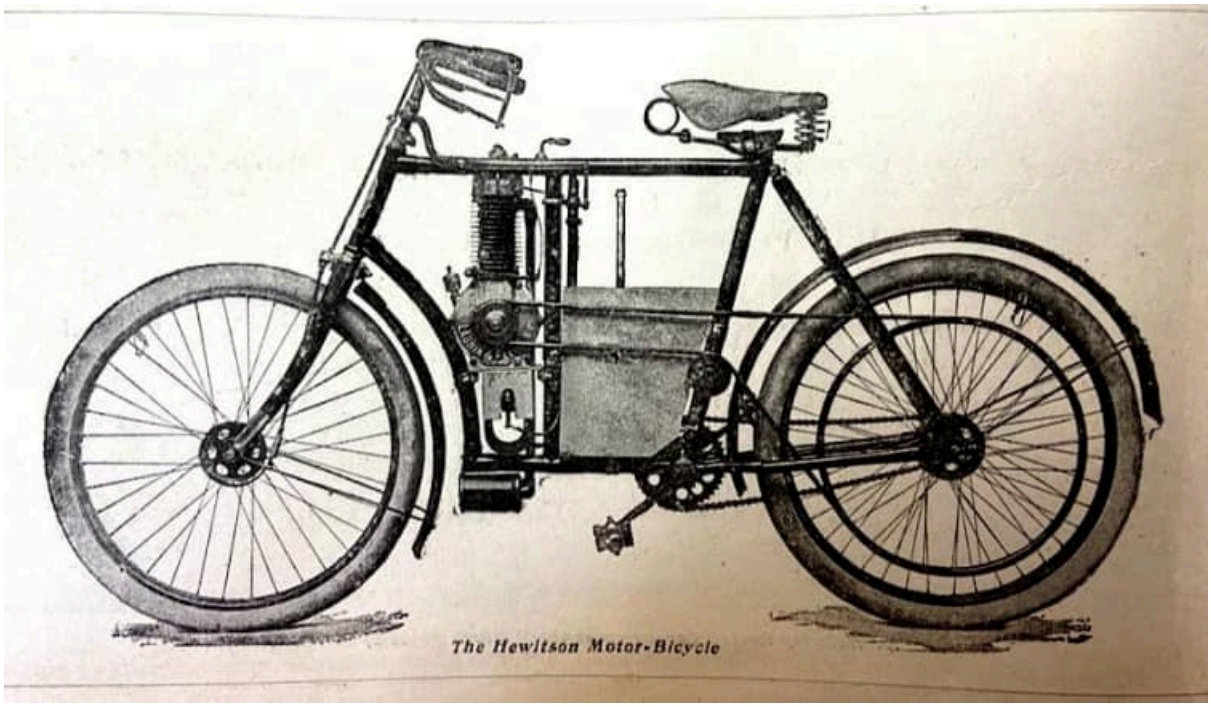
"RA (REIGATE HILL) IS SERIOUSLY thinking of building a steam motor-bicycle or trike if practicable. He intends the engine to be a two-cylinder one of 3bhp so as to be able to draw a trailer if required. He asks what would be the best dimensions to make the boiler to work at 200-250 psi, and also would it be necessary to condense on the road? We have not suīicient data at hand to give exact dimensions, but would think that a boiler on the lines of a small locomobile steam car, and about half , would be suitable."

"ONE OF THE FIRST QUALIFICATIONS which it is necessary for the successful reporter on the daily Press to possess is that of a vivid and never-failing imagination. Given that, little more is needed beyond pencil and paper. In the recording of cycling accidents the reporter's imagination has displayed a conspicuous part, and the scare heads supplied by resourceful sub-editors have brought into horrifying prominence mishaps which mature consideration has proved to be tri ðingintheextreme. It is only to be expected, we suppose, that these budding

geniusesshould now direct their attention to motor cycling, and it is not altogether surprising that they should □ðndinthenew pastime an abundance of material for their proli□ðcpens.We have before us as we write a copy of a Yorkshire paper, in which the Harrogate camp doings are reported at some considerable length. One of the competitors in the motor bicycle race had the misfortune to collide with the railings at one of the corners during one of the motor events, and he suīered somewhat severeinjuries in consequence. It was an extremely unfortunate spill and greatly to be regretted, but the paper mentioned goesto absurd lengths in its □ðctionalreportof the occurrence, as may be gathered from the following extract: 'Mr. Harveyfailed to getround, was pitched against the railings, and left literally hanging over. A groan literally went up from all round the enclosure. Everyonewas horri□ðed.Agentlemansitting on the front row of the grand stand fainted; a youth fell senselessright in the midst of his companions. Thiskind of thing was going on nearly all round the enclosure.'Our special correspondent at the camp assures us that the fainting □ðtssographicallydescribed did not come under his personal notice; nor did he hear one word about people falling swooning'nearly all round the enclosure'. It is really a great pity that these imaginative young men should be allowed space for their eīorts at □ðctioninserious sections of daily journals. Such absolutely unwarranted □ðightsoffancydo an immense amount of harm to a new pastime and a new industry, and are calculated moreover to cause an in□ðnity of pain to the friends and relatives of those who may be involved in accidents of this nature."

"THE HEWETSONISAGOODrepresentative of that class of machine in which the frame has been specially designed to suit the motor, instead of the motor being □ðttedtoanordinary standard machine frame. Thisspecial frame is built of stout-section tubing; instead of a single main down tube a curved tube is used for the fore-part, and then there is a straight extension to the bottom bracket and an extrastiīening tube runs from the centre of the horizontal tube to lower main tube. Thewheel base is of extra length, this tending to lessen vibration and chance of side-slip. Themotor is a 1¾bhp by Laurin and Klément, mounted vertically in the forepart of the frame. It is rigidly clamped between the curved and vertical tubes. It is of the usual pattern air-cooled type, with inside □ðywheels.Theradiators,it will be noticed, extend the full length of the cylinder. Thesilencer is placed well below the frame, and is of an eīective double-chamber type. A distinguishing feature of the machine is the magneto-ignition system employed. Thisis placed in an inverted position and is driven by an eccentric from the motor shaft. Thismagneto has been tested to □ðreatthehighest speed the motor can run at. Thereis only a single connecting wire from the magneto to the sparking plug. TheMixing Valve is adopted instead of the usual type of carburetter, and the valveis connected direct with the petrol tank which has a capacity for 70 to 80 miles. Theregulation of the gas and air mixture is eīected by means of one lever □ðxedbeneaththeleft handle of the machine; this same lever also eīects the starting and stopping and regulation of speed. A tube projecting above the petrol tank is the air supply chimney to the vapourising chamber. Thepower from the motor is transmitted by a twisted hide belt…a small ball-bearing jockey pulley is □ðttedtothediagonal, and this can be adjusted easily. A band brake is □ðttedtothefront hub, this is very powerful, but an additional brake can be adapted to the rear wheel if desired…Theusualpedal gearfor starting is retained, but it is very rare that it is necessaryto assist the motor for hill climbing. Testimonials from riders go to prove that the motor is quite equal to taking a 13-stone rider up a gradient of 1 in 10. A □ðatrawhidebelt drive can be had in place of the round belt when desired. Instead of the force-pump system of lubrication □ðttedtomostother types of standard machines a simple lubrication cup is □ðtted into the crank case; this will take enough oil to last for a 25-30 mile run. Thestandard wheel size is 28x2in with Clipper, Dunlop, Clincher or Continental tyres of motorcycle strength. Thoroughly eīicient mudguards are □ðttedandthebearingsof the machine are of the best quality and dust-

proof. It will be remembered that this type of motor-bicycle, known on the Continent as the Laurin-Klement, performed exceedingly well in the great race from Paris to Vienna, Riegerand Pseodnick riding these motorcycles □ðllingthirdandfourth places respectively."



The Hewitson Motor-Bicycle

"AN 'AUTODROME'WILLBEerected by the municipal authorities of Spa to permit the holding of motorcar competitions in summer and winter. Thetrack will be 12½ miles long, and it will be situated near the old Roman town, the remains of which are to be included in the structure."

"A MOTORCYCLERELIABILITYandeconomytest is to be organised by the New York Motorcycle Club at Manhattan Beach track. A total stoppage of 10 minutes will be permitted to re□ðllpetrol and lubricating tanks. An important rule deals with pedalling. After starting no competitor will be allowed to pedal on more than three separate occasions, or to pedal more than half a lap at any one time. Thetrack is three laps to the mile."

"MR JBDUNLOPJNRHASjust completed a tour of 300 miles in Scotland on his FN motor-bicycle and drawing a trailer into the bargain. He found the machine ran extremely well the whole distance, and he had no need to adjust any part."

"SOME MOTORCYCLERACINGwasincluded in the Heckington Feast Sports (Lincs). The □ðnalof the three miles was won by E Heighton on a 2hp Minerva. At Spalding Bank Holiday Sports a two-mile motorcycle race was won by F Pogson;Dawson second; time 4min. 6sec."

"A REMARKABLECASEHASjustcome before the Paris Courts of Justice in which two cyclists who had hitched themselves on to the rear of a motorcar with tow lines damaged themselves owing to the motor pulling up sharp, with the result that they dashed into the back of it. The cyclists claimed damages from the driver of the car. Thejudge held that it was entirely their own look out, and they were lucky in not getting killed."

"SOME INTERESTINGEXPERIMENTShavebeenmade lately on the French roads in regard to abolishing the dust which is such an inconvenience for motists. Thediīerent systems tried consist of sprinkling on the road either petroleum or tar, and it is said that both are excellent as a preventive."

“A MODERNTRICYCLEmachinegun has been by a German motor manufacturer for the Norwegian Army. The2¼hpmotorcycle carries two men and draws a trailer on which is mounted the machine gun. Thevehicle has been driven up and down verysteep hills, and has given the greatest satisfaction.”

“THE PRIMUSMOTORWORKShavejust brought out what they claim to be a thoroughly successful two-cycle small-power motor for motor-bicycles. Themotor is extremelysimple and is entirely devoid of valves and gears, and □ðresateveryrevolution, and the 1¼hp motor, with 2in bore and 2in stroke. Theengine only weighs 18lb; the makers say it can be □ðttedtoanyroadster bicycle with absolute safety. Thecomplete motor set, weighing 34lb, can be obtained and □ðtted to the machine, if desired. It givesa speed of 25mph and is a fair hill climber.”

“THE LAMAUDIEREMOTOR-BICYCLEisamachine having an excellent reputation in France and on the Continent. Thespecial feature about it is the motor which develops 2¼hp.Thisis built up as part of the frame, taking the place of the diagonal tube. A small crank case and large outside □ðywheelsystemof construction is adopted. Thedrive is by a round belt on to the rear pulley and an adjustable jockey pulley is provided for tightening it. Theignition is the high-tension coil system and the accumulator is carried in a compartment of the petrol tank. A special type of brake is □ðttedtothe inside belt rim and a rim brake is also □ðttedtothe front wheel. Thefront forks are strengthened by an additional pair of tubes.”

“A LARGECROWDASSEMBLEDtowitness the sports organised by the Argyle Athletic Club. In the motor races the □ðvemileshandicapwas won by B Yates on a Humber, with Shakespear on a Clement second. Time 9min 13⅗sec. The □ðvemilesscratchfor all types and powers of motors was won by Garrard on a Clement Garrard 3hp motor in 8min 54sec. The □ðvemilesscratch International race for the ArgyleVasewas open to all classes of motors, and the starters were Rigal, Garrard, and Yates. Rigalhad diīiculties with his motor, and the race lay between Yates and Garrard. At the bell Garrard forged ahead and won a very exciting race in 8min. 24⅖sec.”

“Victor Rigal, the French motorcyclist who competed at the meeting of the Argyle Athletic Club, Plymouth, and carried all; before him.”

“Group of the competing motor-bicycles at the Plymouth Meeting.”

“ON CORONATION BANK HOLIDAY (August 9) some excellent racing was witnessed at Home Park. Victor Rigal, the French champion, was unapproachable, winning all his races on his 10hp Buchet motor quite easily. The □ðve mile handicap for light motors. (1½hp and under) was won by B. Yates on a Humber, S Wright (Excelsior) second, F Stones (Rex) third, time 10min 10⅘sec. The □ðrst heat of the □ðve-miles scratch race open to all powers of motors was won with the

greatest ease by the French champion, who lapped the □ðeldtimeaftertime; time 8min 31⅕sec. Philipstat was second and Yates third. In the □ðnalMartinwas □ðrstaway,butwas caught by Rigal in the third lap, who won in the good time of 7min. 58⅖sec. The □ðvemilesscratchfor light motors was won by Bert Yateson a 1½hp Humber. In the International one-mile scratch race the French champion won, with Martin second, in 1min. 41sec."

"THE WELL-KNOWNCONTINENTALmotorist, M Favares de Mello, vice-president of L'Union Velocipedique Portugaise,has just accomplished a run of 336km—the distance from Oporto to Lisbon—on a standard 1¾hp Werner motor-bicycle, in the time of 11hr 26min 15sec. Theroads were exceedingly bad and hilly, and proved a severe trial to the machine which, however, stood the strain splendidly. Thetime was oīicially checked, and it is believed that the Werner is the only machine to have successfully completed the course."

"A CORRESPONDENTSENDSUSabona-□ðdeaccount of a run which he thinks establishes a record in its way. Mounted on his 65-pounder Clement, he often manages to go 60 and 70 miles on one tank full (less than half a gallon) of petrol, but on a recent run he towed a friend on a bicycle for 60 miles, and had done 40 miles on the machine previously, thus actually getting 100 miles out of less than half a gallon of petrol. It reads almost impossible, but we are aware that some very long runs have been done on a single charge of petrol with these little motors."

"AT THEINTERNATIONALEXHIBITIONofSports at St Petersburg from May to September the Minerva motor obtained the gold medal for the highest distinction."

"ONE OF OURREADERSsendsus the following useful tip which he can vouch for as being eīective. He had the misfortune to severelycut his hand with a screwdriver whilst adjusting his machine, and was at a loss to know what to do to stop the bleeding, when he remembered that vaseline was reputed a good thing, and as petrol is obtained from the same material as vaseline, he applied a rag soaked in petrol to the cut and, to his surprise, found it stopped the bleeding and, moreover, it took away all the pain and allowed him to □ðnishhiswork.Another instance of the uses to which this valuable spirit can be applied."

"MANY RIDEROFTENTRYtheirmachines before putting the belt on simply by putting on about half compression and giving the □ðywheelofthe motor a smart turn. If the right mixture is happened upon, the motor will start up with a single turn, and show that everything is in good order. We have tried this method with an FN and a Clement-Garrard, and found it worked very well."

"EH ARNOTT,RIDINGA2hp Werner motor-bicycle, has covered 36 miles 342 yards in the hour on the Crystal Palacetrack. It was his intention to continue for long distance records, but heavy rain, added to a very high wind, combined to compel a postponement. Thetrip, including as it did one stoppage for the replacement, of the high-tension wire, indicates that under favourable circumstances the latest example of the Werner is certainly capable of putting in 40 miles within the hour."

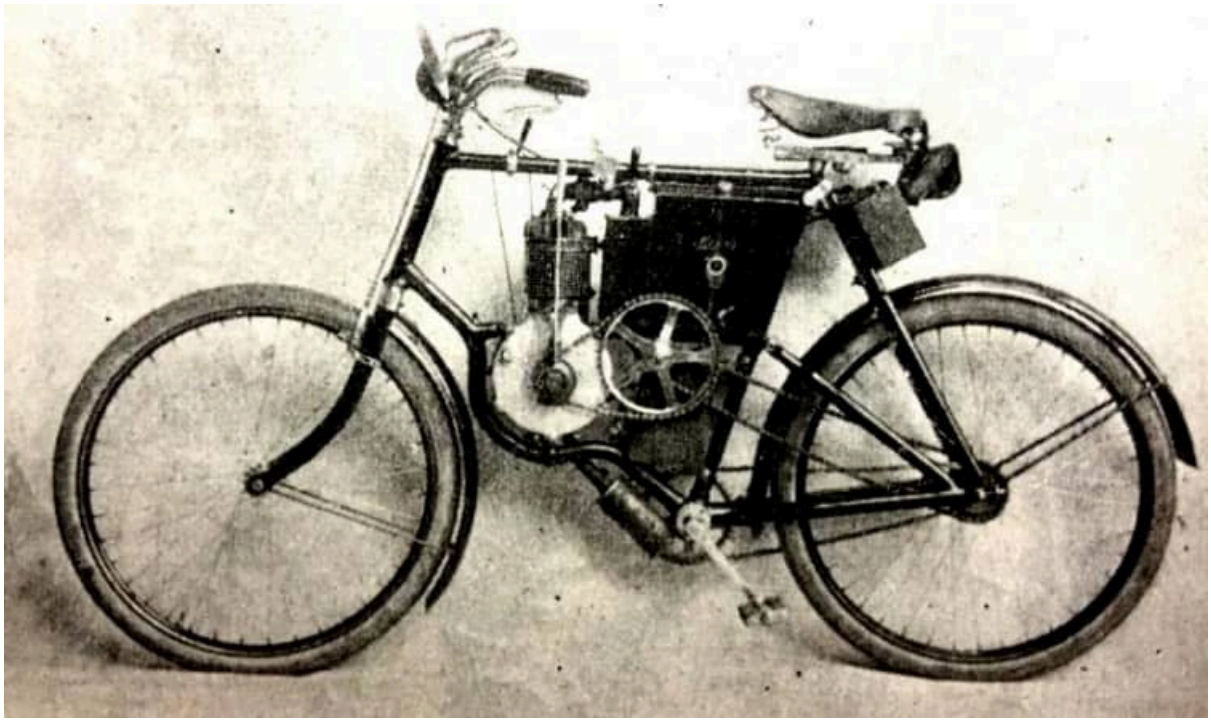
"EH Arnott on the Werner, who rode 36 miles 342 yards in the hour at the Palace on Tuesday."

"SIR, PERHAPSTHEFOLLOWINGaccountof a run we made last week may be of interest to your readers, as showing the □ðnepowerandworkthat can be obtained from the small-powered motor-bike coupled to a trailer. Our entourage consisted of my machine, a King of Cambridge, □ðttedwithaKelecom engine, 1¾hp, spray carburetter, automatic lubrication, and combined exhaust lift and current breaker,a specially built trailer, rather on the heavy side, but with much comfort gained thereby, my brother and I, weighing about 12 stone each. So you see our entire out□ðttippedthe scale at a good □ðgure.Leavinghomeat 10.30am, after a thorough overhaul and tank □ðlling,inafew minutes we were passing through quiet, beautiful old Cambridge, out on the main road to Huntingdon. Clear of the town, our little motor picked up speed everymoment, and on the □ðnestretchesof road we buzzed along in □ðnestyle,running into Huntingdon about 11.30. Leavingit asleep in the sunshine, we swung out on to the big North Roadfor our run to Stamford, and then mile after mile into the heart of the summer sunlit country, with no stop except a pull through of the belt on a steep hill, nearly causing the death of a beautiful green snake, a □ðnebigfellow,coiling himself across the road. Lordly Burghley Park on the right warns us we are near Stamford, and soon we are running up the cobbly, narrow streets of the town. A brief stay here, and then on again into beautiful, hilly, wooded Rutland, up and down hill, twisting in and out of lovely, shady, sweet-smelling lanes. A very steep hill marked 'Dangerous', the only one we encountered all day, down which we walk, and three more miles we are in Oakham, with its unique collection of historic horseshoesin the Castle Hall, then right through without a break to Melton Mowbray, where, I feel sure, at night the ghosts of hunters must neigh de□ðanceatthemotor. Turning here, we run back to Oakham for tea, and meet a Locomobile □ðyingthe□ðagofdistressin the shape of a scorched boiler. A pipe here, a thorough look over all nuts and connections, and we are on the road once more for home. We re□ðllourpetrol tanks at

Stamford, and with a beautiful sunset, and our engine running magni□ðcently,wetastethe full joys of our sport. Our run home was quite uneventful; some □ðnerunning,doingsomemiles in a fraction overtwo minutes, and a non-stop run of 40 miles, including slow-up through Huntingdon, in 1-45. Thetotal mileage was 150, and the machine ran throughout magni□ðcently, our one and only trouble being the belt, which we quickly put right.
Basil Gill."

"MESSRSERNSTEISEMANNandCo,of Stuttgart, have constructed a novel electro-magnetic ignition which givesexcellent results. A magnet inductor creates the electric power and half a revolution of the apparatus causes a □ðowofpowerfulsparks at the plug without the use of an interrupter. The charging of accumulators becomes super□ðuousandmis□ðringtroublesare avoided. The□ðrmconstructsan elegant little apparatus of this kind for motorcycles which weighs about 7½lb and costs not more than the averageaccumulator ignition. Theignition works at any speed without auxiliary power and is sure to □ðndagoodreception by those who may have had diīiculty in getting the best results with a spark coil."

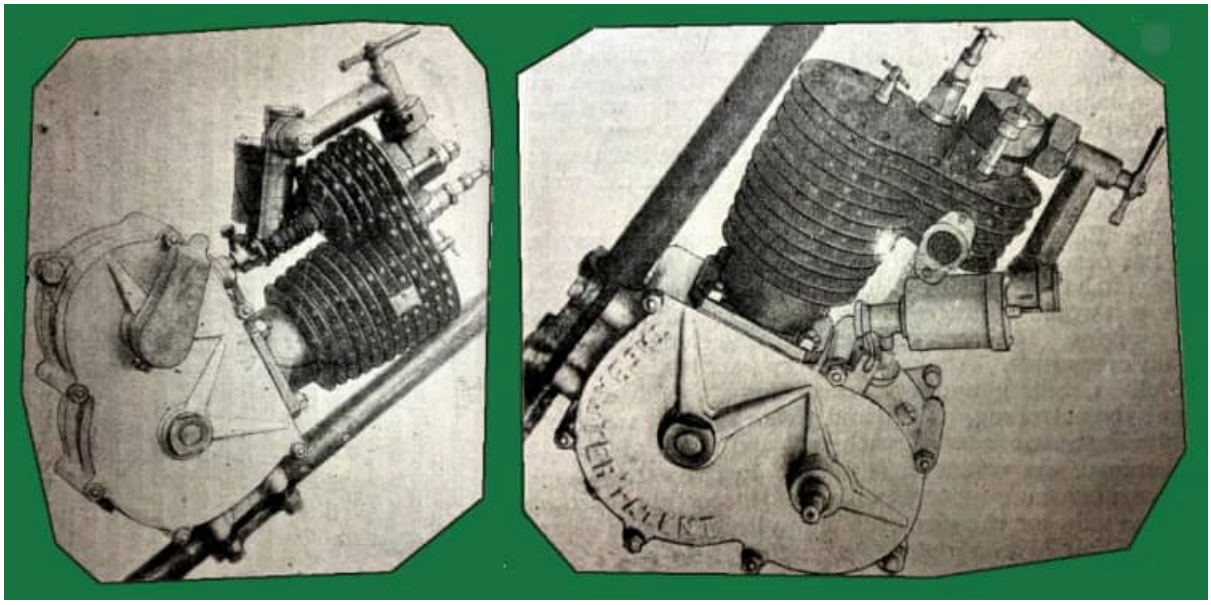
"THE MORRISMOTOR-BICYCLEwasplaced on the market last season and met with considerable favour on account of its good design for 1903. Severaladditional good points have been embodied in the design. Themotor used in a 2¾hp De Dion □ðttedwellforward in the frame, which is specially designed with a loop in the main tube. Thedrive is by means of a Lincona belt. A. friction clutch is □ðttedonthemotor shaft and this can be thrown into gear by a vertical lever □ðttednearthehorizontal tube. A two-speed gear is □ðttedinthe rear hub, and this is actuated by the small quadrant lever in the centre of the horizontal tube. A special device is provided for warming the air intake to the carburetter, givingperfect vaporisation immediately the motor starts. Extra strong forks are □ðtted,andthereare two brakes, a lever front rim and a Bowden back. Thecontrolling levers are placed in a convenient position on the horizontal tube. In addition to the belt drive the □ðrmsupplyaspecial chain drive. Theworkmanship throughout is of the best, and the 'Morris' is a machine that should speedily become popular. A 1¾hp machine, same type as described, will be on the market shortly. Themakers of this machine are Messrs Morris and Cooper, High Street, Oxford."



The Morris featured a two-speed rear hub.

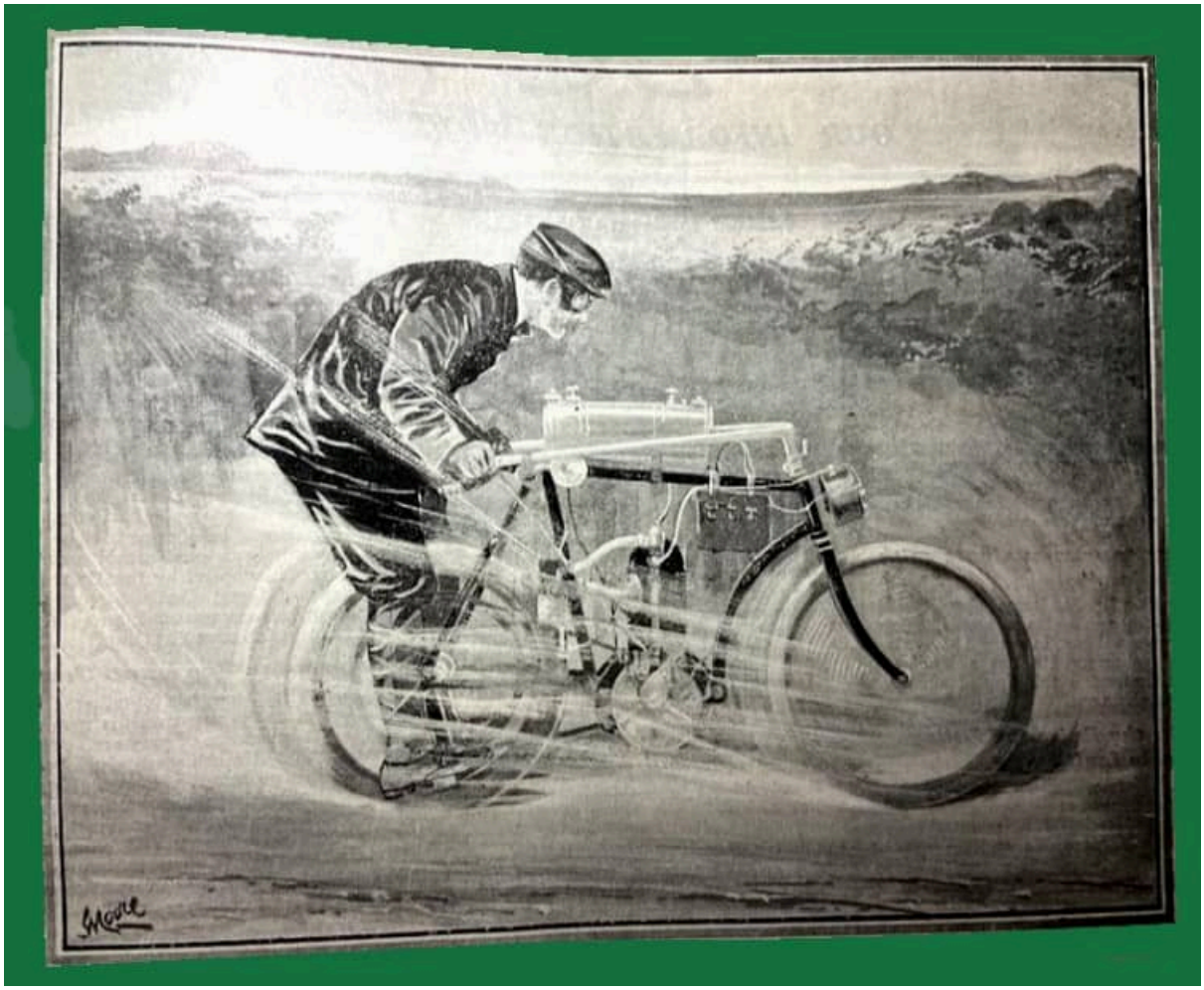
“THE ENGINE DESIGNED AND patented by Mr J Barter of Luckwell Lane, Bristol, diīers from other engine now before the public in that the timing cam spindle forms an integral part of the transmission gear, and is contained in the engine crank case. The general arrangement of the engine follows accepted practice as far as the cylinder, piston, etc are concerned, but the connecting rod has its lower end formed into pins which engage in two □ðywheels. Each of these □ðywheels, heavily weighted with lead, runs on a hardened steel pin which is secured to the crank case, and the crank pin end of the connecting rod couples them together. Each □ðywheel has a machine cut gear wheel pinned to it which gears with corresponding wheels of double the size on the timing cam spindle, and the drive from the engine is taken through these gear wheels to the small chain wheel or belt pulley, which is □ðxed one ither side of the spindle outside the crank case. The timing cam is □ðxed to the spindle between the two gear wheels, and the spindle to the exhaust valve passes through a bearing in the top of the crank case. The advantages of this arrangement. are obvious, for in the □ðrst place the spindle, from which the drive to the back wheel of the cycle is taken, is running at half the speed of the engine. Consequently either the driving wheel on the back cycle wheel be reduced to half its usual size, or it may be reduced somewhat, and a larger wheel put on the timing cam spindle. In the second place, there is absolutely no loose nut, bolt or pin of any description inside the crank case, and consequently nothing short of the actual breakage of any part can cause trouble in the crank case. In the third place there are no adjustments to be made in any way and therefore the crank chamber can he opened up and the various parts taken out, cleaned, examined, and replaced by anyone without any fear of a mistake being made. The question may be asked, ‘What about wear when no adjustments are provided?’ The answer to this is that with hardened steel pins and ben ring, and the eīicient lubrication provided in a crank case which is protected from dirt and dust, no appreciable wear will take place for a very considerable time, and when it does so the holes can be rebushed and new pins put in at very small expense. An engine which has just completed over 1,000 miles’ run has been carefully examined and shows no signs of wear, the tool marks of the machining not even being worn oī. The engine cylinder is 72x72mm, and it is □ðtted with standard 2¼ De Dion valves. It is provided with an exhaust valve lifter, and the wings of the

radiators are drilled to give greater cooling capacity. The engine and carburetter are being manufactured and put on the market by Messrs Humpage, Jacques and Pedersen of Ashton Gate, Bristol."



Look out for a □ðat-twin Barter engine in 1905, marking the □ðrst chapter in a great marque.

"MR EJSMITH WRITES us as follows re the Ormonde: 'I will preface my remarks by saying that having been a cyclist for 33 Years I am not so juvenile as formerly, and moreover, being reluctant to lose my command over a machine by back-pedalling, I had not been used to a free wheel. When, therefore, I say that I was able to mount the machine at the works, Wells Street, Oxford Street, the □ðrst time I had ever ridden a motor-bike, and there and then negotiate the traïic of London streets through Ealing and so on; for a novice who is not used to congested traïic, living as I do in a small country town, to be able to do this speaks volumes for the ease with which the Ormonde is controlled. Some 1,000 miles on it has only con□ðrmed my □ðrst delighted impressions of it, and I should like to call attention to the following points in the Ormonde: The ingenious plan of breaking the electric circuit by a twist of the left grip, and of opening the exhaust valve by a further twist, gives splendid control in traïic, and in rounding corners economises the petrol and cools the engine down hill. It is at once simple and eïicient. Not the least advantage is the ease with which the machine is started, as all compression is removed until the machine is under way; then, releasing the grip, a spring causes the exhaust valve to be lowered and electrical contact to again be made, and she □ðres at once. There is no trial and miss, trial and miss, □ðshing about for the right mixture. The □ðoat feed carburetter acts regularly, no matter what the condition of the atmosphere, and with this carburetter you have not to be so particular as to your petrol being quite fresh. The accumulator is a good one in a celluloid case of 20 ampere-hours capacity, and the coil a □ðrst-class one in polished ebonite case, and giving a good ½-⅝in spark; the contact breaker a positive make and break, the stroke of the engine a fraction short of 3in, and the bore 2⅝in, and □ðtted with the renowned Lincona belt. The power is stated to be 1¾hp actual; at any rate, I am able to repeatedly mount a hill with pedalling, which a rider passing through here on a reputed 2¾hp machine said he had to get oï for, and on the level the pace is anything up to 30mph. The whole machine bears evidence of much thought, consideration and experience, is strongly and well made, and with plated rims and 2in Dunlop-Bartlett tyres is cut out for hard and enduring work, and is a well □ðnished mount…in all my cycling years I have not come across a more courteous and attentive □ðrm than the Ormonde."



“Out for speed!”

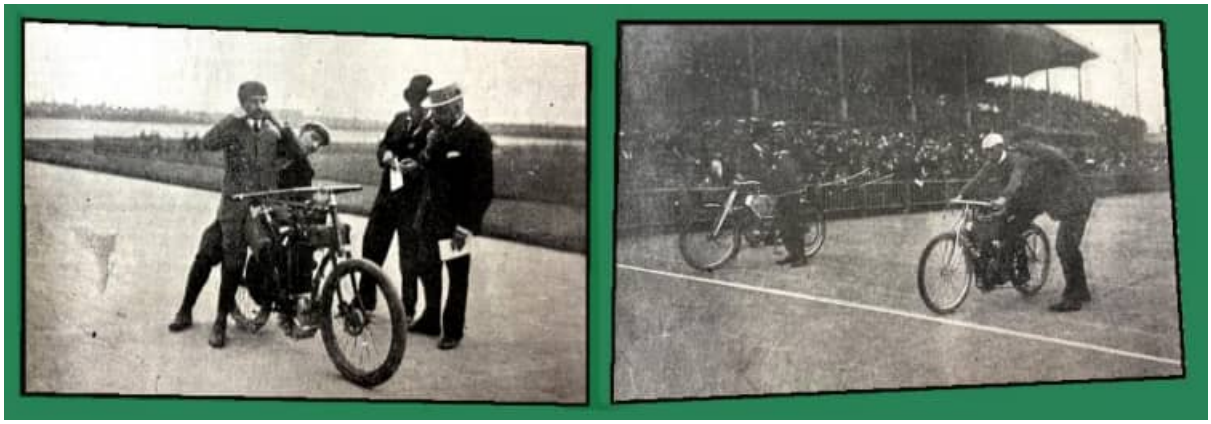
A new crankless motor-bicycle has been invented by an engineer, Mr Schneeweiss, of Frankfort-on-the-Maine. This motor, he claims, will be an improvement on petrol and alcohol. motors now in use, and of all the existing types it is the most simple. It diīers from other motors mainly because it has no crank, crank shaft, piston pin, crank bearings, and other parts. The complicated gear of eccentrics, rods, slides, etc, otherwise needed, have here been discarded. The new crankless motor has one open cylinder with two pistons and two □ðywheels, which are □ðrmly connected by a shaft. The straight movements of the piston cause the rotation of the □ðy wheels by means of a rod with friction jaws, holding steel pulleys without any joints or connecting links. The motor is very simple in construction, takes little space, and cannot get easily out of order. The power is 2hp, one to each piston and a half to each pulley. This power is given in full to the driving wheel, and not, as hitherto, □ðrst to the shaft. The strong jerks on the crank shaft and bearings are avoided, and only a small amount of friction has to be overcome.”

“THE GREAT WALTHAM Manufacturing □ðrm have commenced to manufacture their own motors for □ðtting to their motor-bicycles. The workmanship will be of the □ðnest and the type adopted is the enclosed □ðy-wheel type. Fluted copper radiators are □ðtted to the cylinders, the main bearings are gun metal and the crank shaft and pin tool steel, hardened and ground true. The diameter of the cylinder is three inches, and length of stroke 3¼in, and weight complete, 75lb.”

“WE HEAR THE FAMOUS Clement Co are now actively engaged in getting their new works equipped in the States. They are putting down a plant at a factory in Hartford, and a large

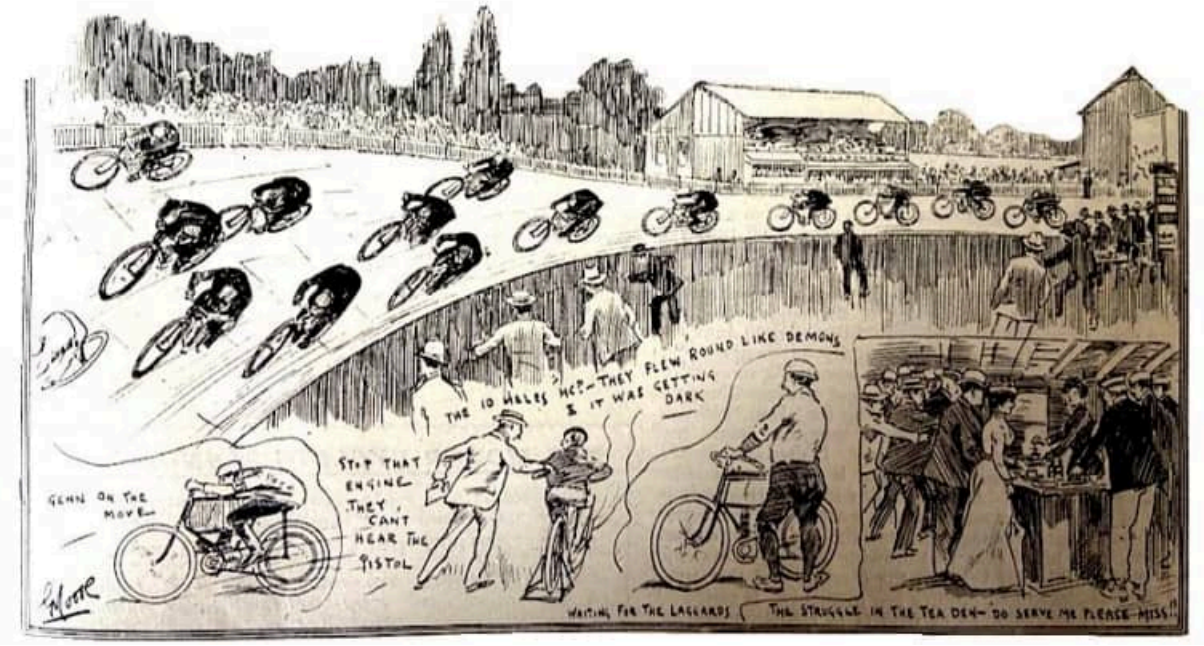
number of men will be employed in getting a large stock of the 21lb motor sets ready for the next season. Two or three of these little machines were imported recently, and favourably impressed even the up-to-date and critical American engineer with the excellence of the workmanship and all-round eīiciency."

"CANNING TOWN MAY NOT be the most salubrious of neighbourhoods, but that they are true sportsmen there is evident beyond all doubt. The West Ham United Football Club are to be congratulated upon their enterprise in bringing over Victor Rigal, and in arranging such a splendid programme on Saturday last. The result was a huge 'gate', probably 16,000 people □ðllingeverynookand corner of grounds and stand. Rigal, fresh from his Deauville victories came over in the morning, bringing with him his 10hp Buchet motor-bicycle which develops 14hp. The monster may not be attractive, but is a 'goer' and the detonations, as the speed-beast careered round, could be heard at some distance. Rigal was, of course, over here recently at the Plymouth meetings, and the writer remembers him matched against CG Wridgway some years ago at the Crystal Palace. But motorcycles have improved since then. The compact, dark little rider was billed to make attempts on the one-and □ðve-milerecords□ðyingstart,andalso on the ten miles, but the programme was slightly altered, as subsequent events proved. His attempt on the one mile proved abortive, his time being 1min 11sec, existing record 1min. 9⅖sec, thus being 1⅗sec. outside. For the □ðvemilesattempta two-mile exhibition ride was substituted. Riga], Jvan Hooydonk (2¼hp Phoenix) and H. Martin (2¾hp Excelsior) riding. Rigal's machine was obstreperous at the start and the men were called back. After a restart he led into the second mile, but stopped, presumably, owing to a misunderstanding, and the placings were Martin, □ðrst;Hooydonk,second. Our own men rode splendidly, and at once caught the appreciation of the 'gallery'. Time 3min 5sec. One of the most exciting events of the after-noon was the □ðve-milematchbetween Jvan. Hooydonk and H Martin, the latter conceding his opponent 30sec start. Martin caught his man, and then commenced a battle royal, the men riding neck and neck for laps, to the huge delight of the crowd. Hooydonk secured inside berth and just beat Martin by a length. Time 8min 3sec. Rigal 10-mile record attempt (standing start). Going at terri□ðcspeed,Rigalwas one second inside the record at three miles when his belt broke and he had to give up the attempt.



“Victor Rigal (who covered the kilometre in 24⅘sec at Deauville) ready to start for his 10-mile record attempt at Canning Town.” (Right) “H Martin (outside) and Jvan Hooydonk starting for their □ðve-mile contest.”

“THE CRYSTAL PALACE MEETING was held in brilliant weather; in fact, the heat was intense during the early part of the afternoon. Such an array of motorcycles has not previously been seen at the Palace track, and there would be 40 or 50 of these machines round about—a good testimony to the interest taken in, and progress made by, the new sport and industry. The Club had organised a one hour scratch race, open to any type of motorcycle, and there were 18 entries for this, including most of the crack riders…” Joe Van Hooydonk was leading the □ðeld when the one-hour shot was □ðred; he won on his Phoenix at a record distance of 42 miles 290 yards. No less than 23 competitors entered for the □ðve-mile handicap, and it was run oī in □ðve heats. In the □ðrst heat the winner was FE Coles on a Brown motorbicycle, 1½hp, time 7 time 7min. 13⅕sec; heat two: winner, E Perks, on a Singer, in 7min 8sec; heat three: winner, SC Holloway, 1½hp Minerva, in 6min 28sec; heat four: winner, Jvan Hooydonk, 2¼hp Phoenix; West □ðeld second, time 6min 58sec; heat □ðve: winner, FR Wade, Daw 1¾hp; H Davies second, time 7min 20⅘sec. In the □ðnal there were Hooydonk, Coles, Perks, Sidwell—as the fastest loser—Holloway, and Wade. In this race, Hooydonk and Perks, although riding splendidly, were too heavily handicapped, and the winner was SC Holloway, Wade being second, Hooydonk third; time 6min 26⅕sec. The Ten Miles Handicap was to have been run in two heats, but as the evening was closing in it was decided to run all oī together as a □ðnal. No less than 20 riders got oī at the start, and an extraordinary scene they presented—the roar and noise generally was deafening, and the pace set by the fast motors simply terrifying, so fast that the lap-scorers had all their work cut out to catch the number of their man as he □ðew past. Hooydonk and Arnott were travelling well over 40mph, and the □ðeld was spread out in a fashion not witnessed before. Some huge starts had been given to the small power motors and, fast as the cracks went, it was evidently hopeless for them to win on the handicap. Perks on his Singer was travelling in excellent style; his exhaust box was glowing a bright red in the shade of the evening and could be seen all over the track. After what was undoubtedly the most exciting, not to sat terrifying, race ever seen at the Palace track, the winner proved to be S Holloway, (with 14 laps 490 yards start); Ridout second, Hooydonk third; time 9min 36sec—this of course being handicap time…Over 1,500 people witnessed the races. Eleven competitors got up in the hour scratch race…Nearly all the oīicials were cyclists, past or present…The ten miles handicap was probably the most thrilling spectacle ever seen on a track…At last year’s meeting, in three out of four events, Chas Jarrott was the only starter…Twenty men on the track, some going, at 40mph, presented a most weird sight in the gloaming…Jvan Hooydonk covered 42 miles 290 yards in the one-hour scratch race, thus securing a British record.”

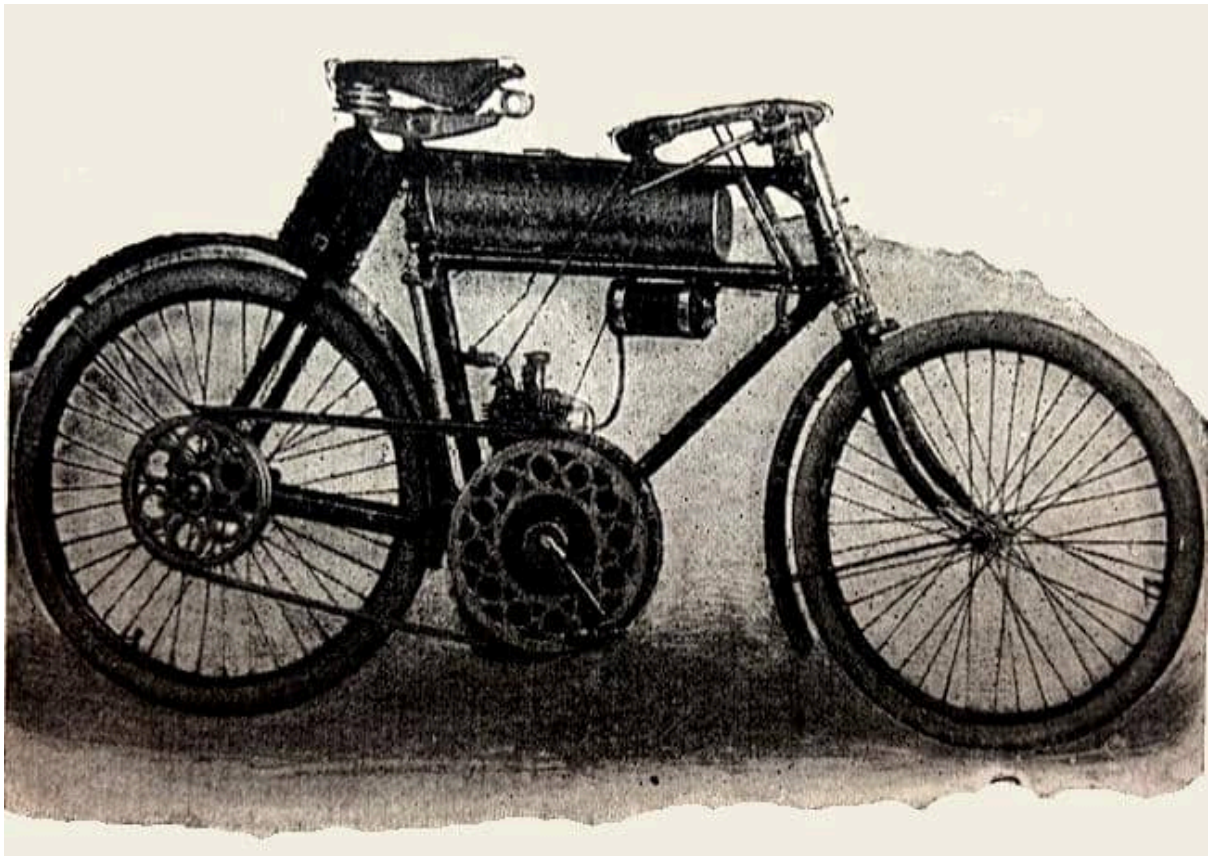

THE 10 MILES HCP.—THEY FLEW ROUND LIKE DEMONS
& IT WAS GETTING DARK
STOP THAT ENGINE THEY CANT HEAR THE PISTOL
GENN ON THE MOVE
WAITING FOR THE LAGGARDS
THE STRUGGLE IN THE TEA DEN—DO SERVE ME PLEASE—MISS!!

"WITHOUT DOUBT THE AUTOMOBILE Club's meeting at the Crystal Palace on Friday was the most important yet held in the history of the motorcycle. At the same time it was a well-ordered and well-managed meeting due, there is no hesitation in saying it, to the fact that the oīicials were all men who have been accustomed for many years to run cycle race meetings and who could bring their wealth of knowledge and experience to bear on a similar, albeit faster sport. A big entry and a series of events, which would give all classes of cycles a chance of showing their capabilities, made up an exceedingly interesting programme, and for wild and thrilling excitement the ten miles handicap, run in the half light, has never seen an equal on any race path, and every onlooker enjoyed it to the full. The outstanding feature of the meeting was the triumph of the moderately-powered cycle which is known as the 'standard' and is obtainable by the public. The big-powered specialities in motorcycles were not in it at all. And the reason is not far to seek. Reliability over a distance, not speed for a few miles, is what will always provide the elements of success. Van Hooydonk's performance on his 2¼hp Phoenix was deserving of all credit for he went through from start to □ðnish and never even mis□ðredonce. Nor did he have to 'tinker' his machine at all during the meeting. The □ðve mileshandicap gave a □ðne race, but in the ten miles the back-markers had too much to concede. In both of these Holloway on a 1 ½hp Minerva rode grandly, simply outpacing many higher-powered machines and winning mainly on his merits. Let the club give us more meetings like that of Friday and the public will □ðock to them as they used to the cycle meetings in the heyday of cycle sport."

“JR BRAMAH AND SON, COPPERSMITHS and tinplate workers, Fargate, Sheffield, are making a new form of silencer for motor-bicycles which is very effective, and will send particulars of same to any reader of Motor Cycling.”

“A GENERAL MEETING OF the Liverpool Motor Cycle Club was held at Kirkland’s Cafe, Lord Street, Liverpool, when some 14 riders of motor-cycles put in an appearance. The business of the evening was to discuss details as to the formation of the club, to elect officers, committee and secretary, pro tem, until the end of 1902, when it is intended to hold a general meeting early in the year 1903 to elect and re-elect new officers for the ensuing 12 months. Mr FH Wheeler was elected captain; Messrs Keizer and Edge, sub-captains; Mr WJ Kirkland, secretary and treasurer. The objects of the club are to have weekly and Sunday tours, runs, &c, and no doubt members who are enthusiasts would be asked to read papers on their experiences, and concerning motorcycles, during the winter months. The subscription fee is 10s 6d, dating from January l, 1903, and riders who are owners of motor-cycles in Liverpool and district who are anxious to become members, can be furnished with full particulars from the Secretary.”

“THE FRAME OF THE CHAPELLE has been carefully studied and designed, being made up with the best weldless steel tubing, specially strengthened throughout to support the weight of the motor and its accessories, as well as the virtual ‘dead’ weight of the rider. It is also very strongly stayed with an extra horizontal tube running from crown to diagonal tube. The front forks have been made so that steel tubular stays can be attached in front, thus avoiding any likelihood of breakage. These forks have not been designed upon ordinary cycle lines, but specially for the motor-bicycle. The 1 ¾hp motor is □ðtted vertically, in what is considered the best possible manner, being placed in the axis of the frame, where it can in no way trouble the rider’s movements, whilst the exhaust and the heat is altogether out of the rider’s way. The motor is of the usual 4-cycle type and runs at a speed of 1,400-2,000rpm. The cooling is obtained by radiating gills forming part of the cylinder, which is made in cast iron instead of steel. The latter metal is much lighter, it is true, but it lends more easily to gripping or tearing up the metal, which promptly puts the engine out of service. Cast iron, by the action of the heat, and the contact of petrol, forms in the interior a surface which gives remarkable results as a bearing, owing to its polished and unctuous contact with the piston and its rings. All is very solid, and the working parts are entirely closed in an aluminium case—consequently there is very little wear. The speed changing device has been patented in all countries where a bicycle can be ridden. With the speed changing gear the rider can obtain three distinct advantages: (1) The motor may be thrown entirely out of gear by means of a small lever placed in a suitable position upon the top tube below the handle bar, and easily accessible, when the machine may be pedalled exactly like an ordinary bicycle without the rider being obliged to dismount to take off the belt in the order not to ‘drag’ the motor resistance; also without having to use a valve lifter, open a compression cock or other such devices to free the motor. (2) By using a speed changing gear in conjunction with a petrol motor, it has the important advantage of increasing the power of the engine, as the following well-known mechanical principle teaches, ‘What is lost in speed is gained in power’. (3) When the slow speed gear is thrown in the hill-climbing capability of the machine is remarkable, and this will be naturally greatly appreciated over ‘switchback’ roads. On the low gear gradients. from 8-10% can be easily climbed without pedalling, on an average of 8-12mph, whilst up abnormal gradients the machine will at least take itself up. (4) On the high gear a speed of from 30-35mph can be obtained over good level surfaced roads. (5) Pedalling is almost entirely unnecessary with the machine □ðtted with a two-speed gear. (6) Being able to throw the motor entirely out of gear is an important, not to say a necessary, factor in the traffic of large towns, as the machine can be pedalled by

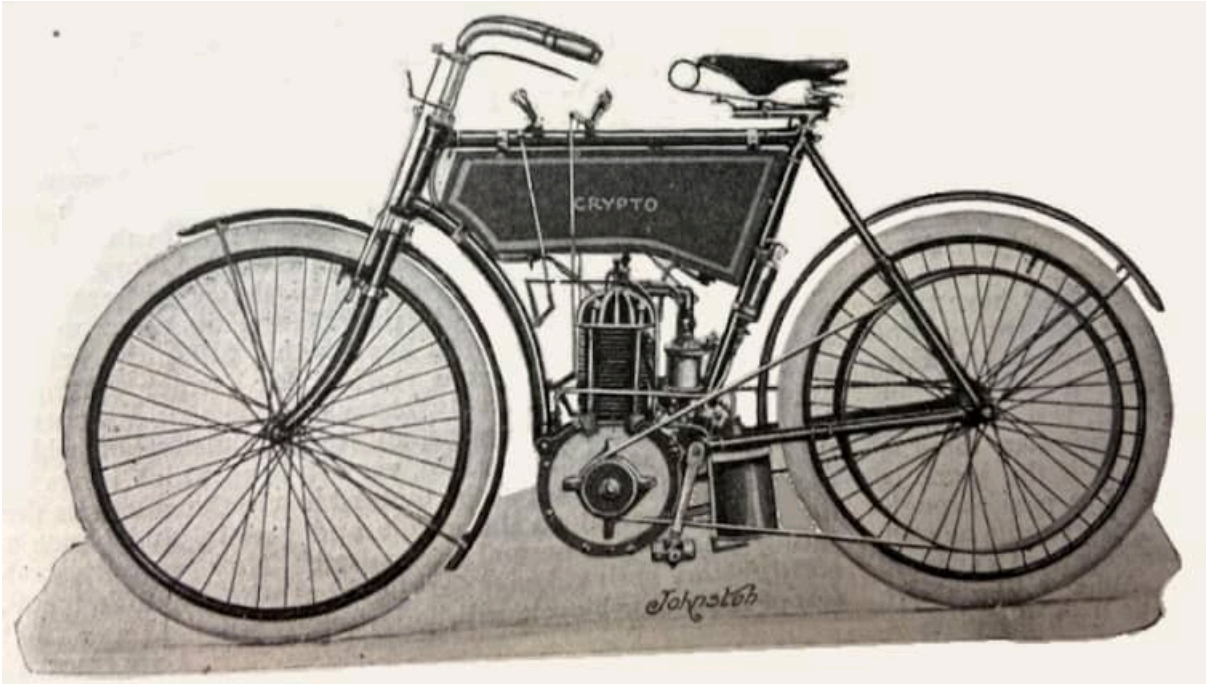


“Chapelle two-speed gear machine.”

the driving belt with perfect ease, and there is an entire absence of vibration. **Manipulation of the Chapelle two-speed motor-bicycle:** (1) Before mounting see that there is a charge of ‘D’ lubricating oil in the crank chamber. A charge is about a small glass full, and this should last 15-20p miles. When a lubricating pump is □ðtteditisa better plan to pump in smaller quantities at intervals during travelling. (2) Place the connecting plug in its position in the centre of the down tube. (3) Turn the plug twice or three times to open the petrol supply from the reservoir so as to allow the spirit to □ðowintothecarburetter, after which shut oī the supply and replace the plug upon the number given with each machine; this is regulated before delivery of the bicycle. (4) Before mounting be careful that the compression tap is open, and do not shut this until the motor is in perfect action. (5) Turn the switch handle as far as it will go away forward, and place the advance sparking lever exactly upright. Then place the air lever at about half open, but this requires altering according to temperature, etc, and no □ðxedrulecanbe given. (6) Move the change speed lever into the neutral position on the middle notch. Tighten the belt and start pedalling. As soon as the machine is going at a good walking pace, keep the feet still, this is essential. Then throw the low gear in with a sharp, sudden movement, making quite sure the compression tap is open. As soon as the gear is in start pedalling again, and when the explosions occur regularly close the compression tap and the machine is oī. To go faster than the low gear will permit push the change-speed lever forward. It is necessary that this should be done quickly. (7) To stop, turn the switch handle oī, open the compression tap and shut oī the petrol. After a little experience the machine can be regulated very nicely by very slightly altering the position of the petrol supply indicator. (8) If stopping the motor for an hour or so, before starting again put a few drops of ordinary paraīin through the compression tap, and push the machine a few yards in order to get the piston to work so as to be assured that it does not stick. (9) Do not forget to take out the connecting plug when stopping for several minutes, as

otherwise the electric current is wasted. (10) It is necessary, occasionally, to verify the nuts, bolts, and screws, and see that the ignition wire is intact. (11) Do not forget to lubricate the motor properly and at the proper time, not too much, not too often, but exactly when it requires oil."

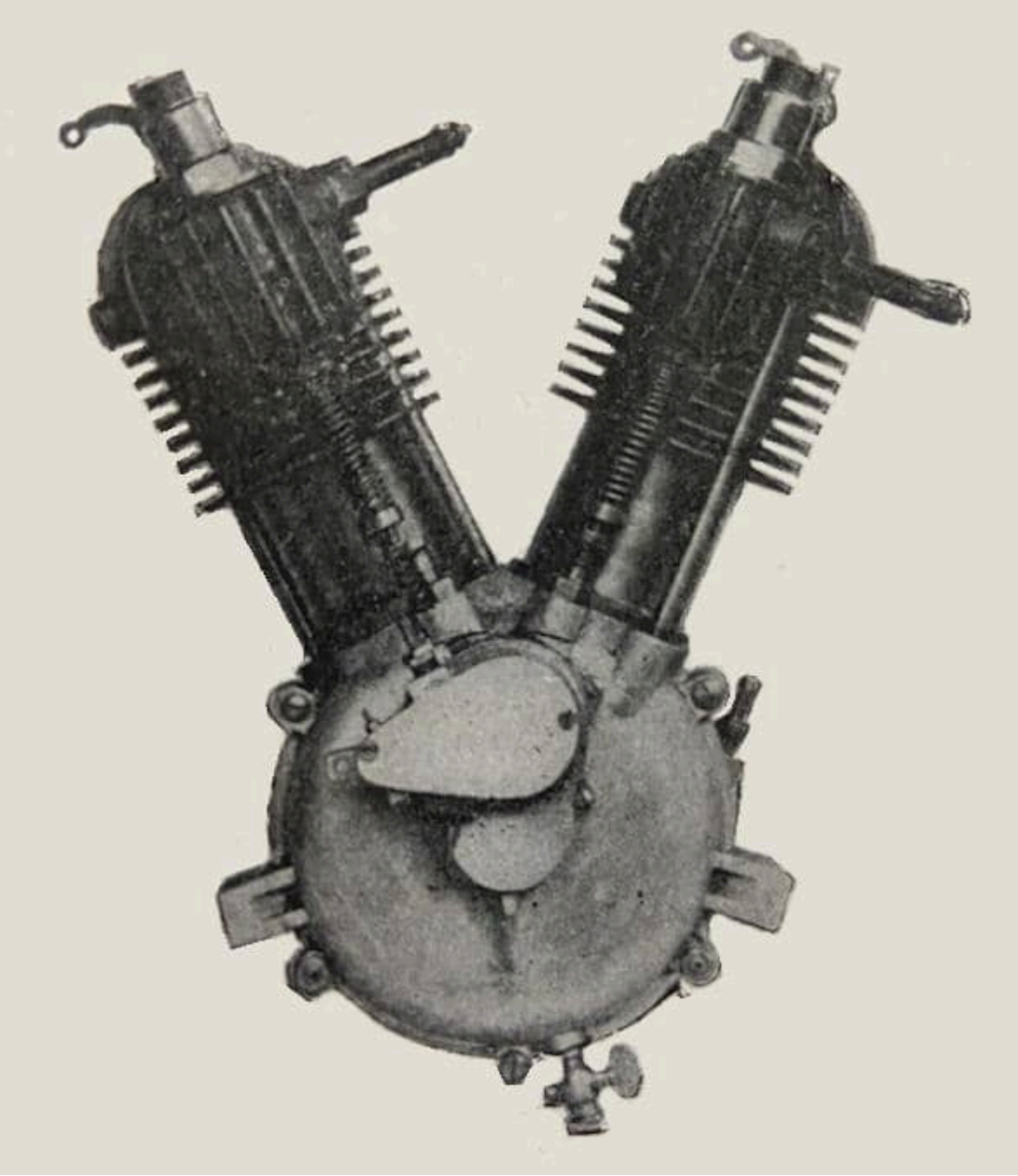
"THE CRYPTOMOTOR-BICYCLE which we now illustrate does very great credit to Mr WJ James and the Crypto Works Co. Its lines are exceedingly shapely and trim, no space is wasted, and yet ample room is given for getting at any part that may need attention. The frame-work is particularly strong, the crank chamber of the motor being used to complete the lower member of the frame. Instead of clips, lugs brazed to the frame form bearings for the various taps and levers, and each of these bearings being coned, any slack is capable of being quickly taken up. The motor is of 2hp, but at customer's option one of 2¾hp can be □ðtted. A spray carburetter has been adopted, together with belt drive and a large silencer. The tank is of large capacity and ignition apparatus of the best quality is provided. For substantiability and reliability the Crypto will have no superior, and we fully anticipate for it a large measure of popularity."



"The Crypto motor-bicycle."

"THE PRINCIPLE OF THE 2¾hp double-cylinder bicycle motor, made by the Princeps Autocar Co, 46, Abington Street, Northampton, is that of two cylinders mounted on one crank case, tandem-wise, inclined in such a manner that the drive is through one crank pin connecting one pair of □ðywheels. The connecting rods are specially designed to eīect this purpose without having to increase the width of the crank case. Each cylinder is 62mm bore x 70mm stroke [484cc], and is provided with a compression tap and exhaust valve lifter. Both compression taps are actuated by one lever, and one lever also serves for both exhaust valve lifters. In the latter case a partial movement of the lever cuts out one cylinder for slow driving in traīic, and the completed movement cuts out both cylinders. The engine shaft takes either a toothed wheel for chain drive or a pulley for □ðat belt drive, as desired, and the now well-known Princeps clutch can also be □ðtted to provide a free engine at will. The electric make-and-break contact is through double blades working alternately by means of a special double cam, the whole being contained in a case of the usual size. One carburetter supplies gas to both cylinders. This is a

new pattern specially made by the company which, after a □ðrstadjustment,acts automatically at any speed. It will be seen, therefore, that the use of the two cylinders causes no complications in driving, the same number of levers only being required as in the single-cylinder type; and when the motor is placed quasi-vertically in the low type of □ðame,nomorepractical space is taken up either in height or width than when a single-cylinder motor is □ðtted.Great smoothness of running and absence of vibration is secured by the motive force being exerted every revolution and the careful balancing of the □ðywheels."



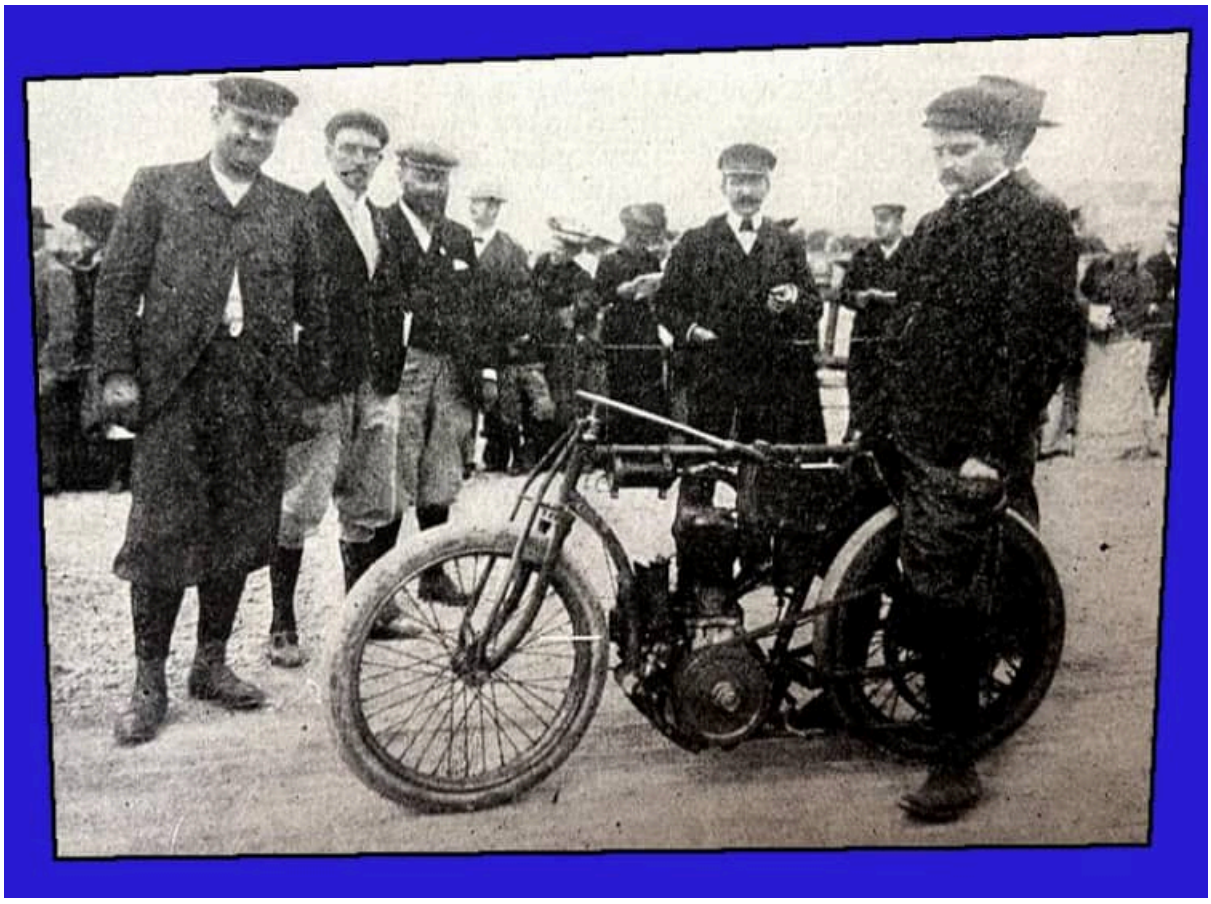
The Princeps 'double-cylinder bicycle motor'. Hey presto it's a V-twin.

"THE PRIMUS MOTOR CO are now supplying their smallest motors with friction drive for attaching to any existing machine without alteration. A larger 2¼hp motor is being also put on the market which is only a little heavier than the 1½hp, and they also intend to □ðtachaindrive

with two speeds, which is done with ordinary cut spur gear wheels. The complete machine supplied by this □ðrmis of the Humber pattern, built extra strong, and it is interesting to note that the company are putting a ladies' motor-bicycle on the market. From a short trial we had of the friction-driven type we found it ran easily and with little noise, and it is moreover a light and handy little machine."

"M RIGAL, THE FRENCH CHAMPION, has just made a sensational performance by covering the Deauville □ðying kilometre in 28⅘ sec, which is almost 80mph. The machine he used was made by M Buchet, of Paris. The winner of the light class competition was M Barre, on a motor-bicycle under 66lb in weight, in 49⅗ sec. The machine was made by Bruneau, of Tours, and the same rider won the contest for machines weighing 110lb on a similar make. A lady, Mme Jollivet, rode the kilometre in 58 seconds."

"DEMESTER'S MOTORCYCLE, WHICH he constructed together with Lamberjack, is certainly the speediest cycle of the kind. The owners hope to reduce all records by means of it, and Deauville was to give the □ðrst example. A speed of about 120km/h—75mph—can be maintained."



"Demester with his Demester-Lamberjack motor-bicycle. He covered the kilometre course at Deauville in the marvellous time of 33⅘ sec."

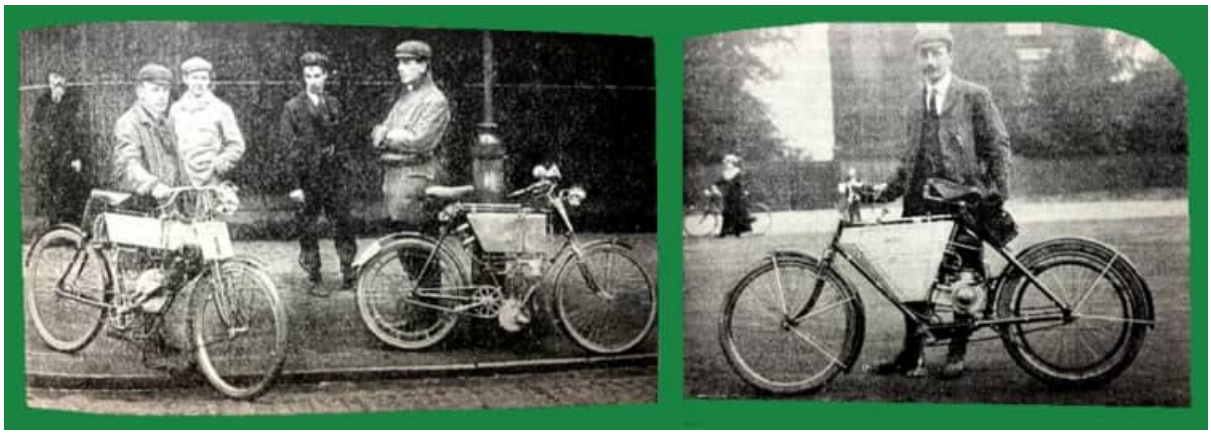
"THE DEAUVILLE RECORDS had to be annulled because the chronometers were wrong. The admitted error is seven seconds, and as the speed per second was 40 metres, the total amounts to a reduction of 280 metres. The total distance was only 1,000 metres, and the speed calculated per hour has to be reduced from the proclaimed 136km (84 miles) to a modest 108km (67⅒ miles). M Gabriel's triumph was very short."

"SIR, HAVING ARRIVED AT the conclusion that motorcycles were a success, and possessing plenty of tools, etc, a good lathe and a few spare hours after business, I determined to try my hand at making a motor-bicycle. I made patterns of engine from my own design, and having secured the castings I worked them up, and got the engine working, having meanwhile purchased a Peto and Radford accumulator and coil. Then I built up a cycle frame of BSA □öttings and strong tubes, and the wheels to suit a pair of Warwick tyres. I □önished the machine about two months ago and am highly grati□ed by the results, having covered some hundreds of miles on it since. The size of the engine is 2⅞in bore by 2¾in stroke, and I can get 25mph on the level, and 15 on a hilly road, with occasional assistance by pedalling. It has a spray carburetter, exhaust valve lifter and belt drive. The petrol reservoir holds suïicient for 100 miles, at the small cost of 1d (one penny) for seven miles. The whole ,machine has cost me not over £20 for the parts and materials.
EW, Dewbury."

"MANY MEN NEED A CIGAR or cigarette when they wish to assume an attitude of ease or nonchalance. And it is in a nonchalant nay that the proud young motor cyclist sometimes overhauls his machine, and inspects or □öll shi stanks. Amongst the unsophisticated associates of motorists, we have often noticed a desire to superintend re□öll ing operations, and they deem it appropriate to enjoy a smoke at the same time. The experienced motorist, if he is a man of resourceful language, generally explains the danger in a way which makes the smoker keep is respectful distance henceforth. But the motor cyclist is generally alone, and has probably been not suïiciently warned of the in□ammability of petrol. His rashness may cost him dearly. It is the height or folly to risk any chance of this kind. Petrol gives oï an invisible vapour rapidly. This can catch □öre several feet away from the liquid, and, if mixed with air, forms, of course, a most explosive mixture. Such a □öre once started is almost impossible to put out and it develops with such amazing rapidity that the motorist or the machine may be seriously damaged before any eïorts to check it can be put in force."

"THE VERY IMPORTANT TRIALS organised by the Automobile Club have been held each day but Sunday the past week. Ninety-two motor vehicles of diïerent types and powers had entered, and included in these were four motor-bicycles and two Century tandems. There were two Humber motor-bicycles; a 3hp and a 2hp, ridden respectively by Bert Yates and Crundall; a 1¾hp Ormonde, ridden by Alfred Wright; and a If 1¾hp Werner, ridden by EH Arnott. The main object of the trials has been to give the car makers and the public an opportunity of thoroughly observing the capabilities of the various cars entered under actual riding conditions, as distinct from special racing and speed contests. The trials have also proved of great value in the sense that they have shewn up the faults or special merits of the diïerent innovations in detail additions to the car mechanism, and, again, the fact of the car makers being put in competition with each other must prove a considerable stimulus to them in the direction of still further improving their productions. The total distance of the six runs was 650 miles, made up of the following daily runs: Starting from the Crystal Palace, Monday, Folkestone and back, 139½ miles; Tuesday Eastbourne and back ; Wednesday, Worthing and back ; Thursday, Brighton and back; Friday, hill-climbing and fuel consumption trials; Saturday, Bexhill-on-Sea and back. Most people will remember the □örst motor carrun to Brighton, held on 'Emancipation' Day, on a dreary day in November, 1896, with its long and painful record of mishaps and breakdowns; but the march of improvement has been steady since that day, and the □örst day's run of this year's trials was as marked by the complete absence of anything approaching serious mishaps as the famous run of '96 was marked by the presence of them. The motor-cycles, although few in number, were representative of high-class makes, and gave a very good account of themselves."

Vehicles were judged in 10 classes according to their retail prices. There was no separate class for bikes; they were lumped in with tye lightest cars valued up to 150 (Class K covered cars valued at £1,000-1,200).Points were awarded for features including hill-climbing, reliability, steering and power-to-weight ratio. Motor Cycling summed it up: "For any vehicle to do really well and to be cheap, eīicient, reliable, and a good hill climber, 3,000 marks should be obtained. So when we record that fact that no less than 3,243 marks were secured by the 3hp Humber motor-bicycle, it will be realised that a very high degree of eīiciency had been attained in this machine. It secures the highest total of marks in the whole competition; the next vehicle to it being the 10hp Peugeot, with 3113. Mr Jarrott's 15hp Panhard was third with 3,089; the 5hp Baby Peugeot was fourth with 3,032; and the 20hp Wolseley was sixth with 3030. The rest of the scoring was in the 2,000s, with one car scoring 1,922, the lowest score…"



"Bert Yates and EH Arnott ready to start on Monday." (Right)"Alfred Weight and the Ormonde."

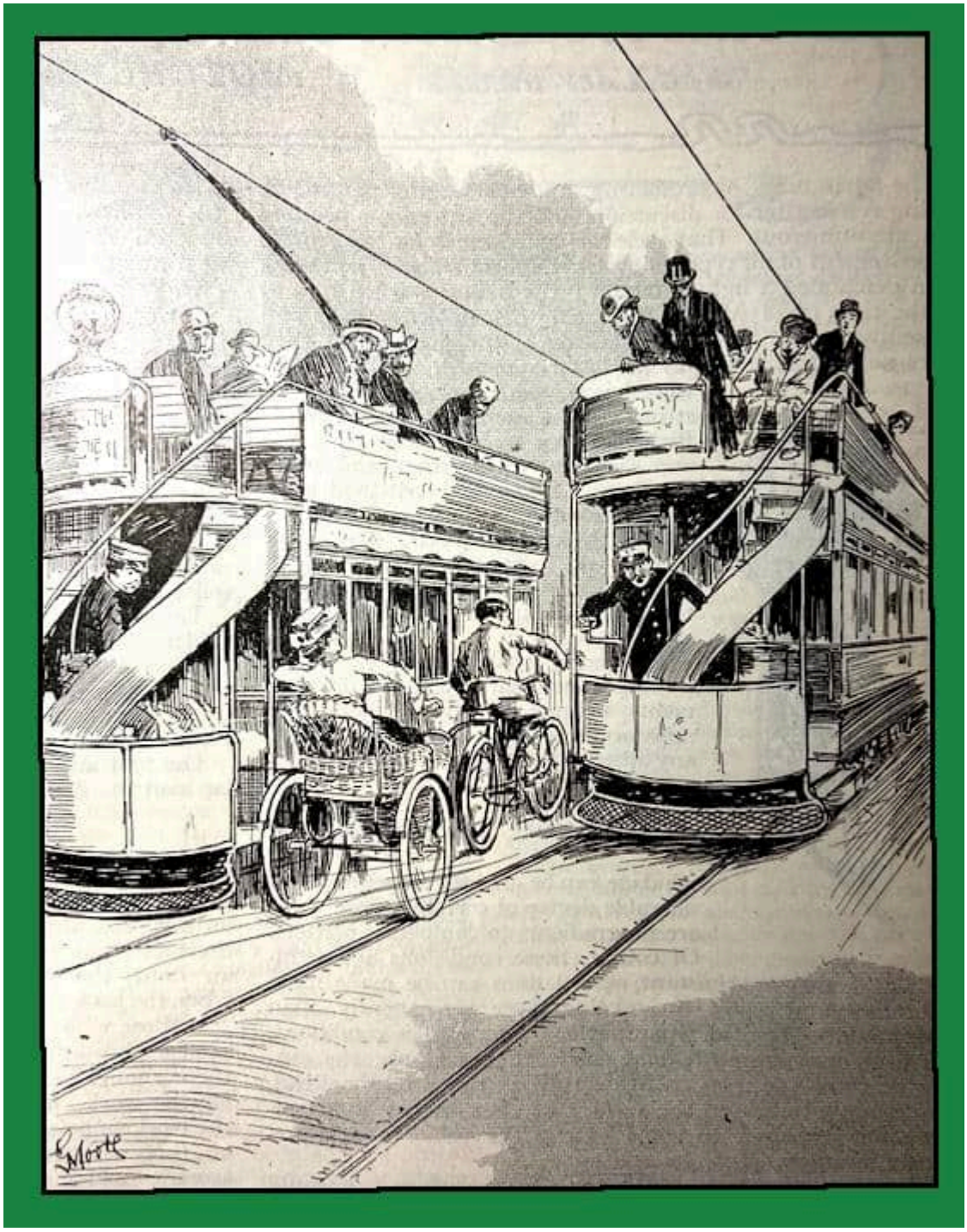
"WHEN THE'RELIABILITY'TRIALS recently organised by the Automobile Club came to a close it was generally admitted that the motorcycles had performed exceedingly well. Some authorities even went so far as to express their wonder at the absence of that continual stream of petty troubles to which such a miniature instrument ought (in their opinion) to be subject. The judges' report upon the trials just issued must have been a severe shock to them: to ðndthattheir expensive and magniðcentcarsofhigh horse-power had been eclipsed for reliability and eīiciency by a little 3hp Humber bicycle has greatly oīended their sense of dignity. Hereafter, we predict with conðdencethattheattitude of studied neglect which the Automobile Club has adopted towards the motor-bicycle will be abandoned, and the promise contained in the current number of the Club journal to encourageand foster the little vehicle will be abundantly fulðlled.Somuchfor that side of the question. As for the outcome of the trials, although it will be admitted that even those most keenly interested in the motor-bicycle had no thought of gaining absolutely ðrstplace,asthe Humber did, it is a fact that good performances were fully expected. As one very well-known maker and sportsman told us prior to the trials, the motorcycle could go through that week's work easily, so that, in his opinion, the result would not warrant the expenditure of time and money necessary. So far as the motorcycles are concerned, ðrstplacewaswon, and the only one which withdrew from the competition was Arnott's, and that was because the rider was incapacitated by a wretched dog. We are delighted with the performances of the two Humbers and the Ormonde: they have demonstrated to the world what the advocates of the motor-bicycle have contended all along, that it is an eīicient vehicle, free from petty troubles (provided it be properly treated), and a most pleasant, enjoyable and economical mode of locomotion. "

“THE EXPERTEMPLOYEESattheGarrard works and those of Messrs Clement’s works each think they can get more out of their 21lb touring engines than the other, so a series of private matches are being arranged to be run oī, one part in France and the other revanche in England…Theenginesareidentical, but liberty is given in the matters of ignition, lubrication and transmission.”

“IT ISA CONSIDERABLEtimesince we heard a case similar to one related to us just recently by a correspondent. It seems he had been riding his motorcycle with trailer and passenger along the Ripley Road at about the legal limit, and had dismounted at a well-known cyclists’ resort, when he was immediately dropped on by a police oīicial with a polite request for name and address, with a view to a summons for riding ‘a motorcycle with trailer attached’ at a ‘greater speed than 6mph’, not to mention as additional summons for riding the motor-bicycle at 12.1mph! This reads distinctly funny, and we can only imagine that the worthy Robert had by some freak of a highly elastic imagination mistaken the motor-bicycle for a steam roller minus the man with the red □ðaginfront.We believe there is a bye-law with regard to traction engines drawing trailers carrying bricks or merchandise at more than 6mph, and a wise measure it is because a side slip on the part of the engine or trailer when running at excessivespeed with the bricks would be disastrous. But, speaking seriously, we intend to take this instance up, and trust our readers will furnish us with particulars of similar incidents, and, if possible, a sketch or snap shot of the intellectual-featured limb of the law who eīects the capture.”

“AT THEINQUESTheldin connection with the Baddesley murders, recently, the motor-bicycle played an important part. Thescene of the inquest is a long distance from a railway station, and to enable the papers to get a full report of the inquest in a special edition, it was necessary that the reporter’s account should reach the oīice at the earliest possible moment. Toaccomplish this the services of two motor cyclists were secured—Mr Yoxall on a 2hp Humber, and Mr. Birch on a 2hp Birch motorcycle. With their assistance fresh supplies of copy were brought up to the oīices in far quicker time than could havebeen accomplished by any other method of locomotion. This proves one of the very practical uses to which the motor-bicycle can be put.”

“IT ISNOTOFTENthat one hears of such a remarkable accident as befell Mr and Mrs Quinton, of Nottingham, who had just made a start on their holidays. Mr. Quinton was riding along one of the main thoroughfares, along which the electric trams run, and in trying to pass on the outside of an electric car going in the same direction, he failed to notice another tram coming towards him on the other line; the result was that to avoid a collision he tried to pass between the two cars and got the machine crushed in by the sides of the cars. Marvellous to relate, neither of the riders of the machine and trailer was seriously hurt, but one of the cars had to be jacked up oī the line before the smashed machine could be released.”



"Squeezed between two Electric Cars. A Nottingham Motorcyclist's Predicament while drawing a Trailer."

"AFTER WEIGHING UP the respective merits of the numberless machines in the market—all of which seemed, from the attractive advertisements, to be 'the' machine—I decided to purchase a 2¾hp Excelsior. Although I felt that the enormous weight would be somewhat diīicult to manipulate, power was the chief consideration, as the district round Hudders□ðeld is very hilly, and the roads anything but good. After much patient waiting the machine arrived in a huge packing case, and just about taxed the utmost eīorts of a large railway staī to eīect delivery. After a couple of hours' unpacking the machine stood revealed; and after the little 1½hp bikes, she looked a veritable leviathan, with the business-like looking engine and substantial tyres. It

was with a feeling of some trepidation that, after oiling up and □ðllingthetankwith petrol, I essayeda trial trip. How beautifully she ran! Theweight was so splendidly balanced that a touch of a □ðngerwasenoughtoguide. And where was the vibration that one hears so much about?—absolutely non-existent! My □ðrstlittletrouble was a loose connection at connecting plug terminal, which when found was nothing at all. My second was very curious, as showing what big results ensue through a little carelessness. Happening to screw up one of the thumb screws on contact breaker cover too tightly, I pulled support from insulating material and had to have a new one. In connecting wires to contact breaker I inadvertently reversed them, with a consequence that the electric current short-circuited, and the subsequent □ðreworkdisplaywas rather eīective, but not bene□ðcial.Sincethen I have had no trouble at all, and □ðndthemachine will reach 40mph on the level, and climb a 1 in 10 at 20mph easily; but here a word of advice. In most hand-books one will □ðndthatitis said to climb hills the gas should be full on and ignition retarded to the utmost. This may be so on small motors, but on the 2¾ I □ðndthebestresults are: gas half on and ignition about two-thirds advanced, and then it would take the side of a house to stop her going up, providing belt is kept carefully at correct tension and well cared for. My Lincona is excellent, and after a little linseed oil will do anything. Theone and only slight fault I can discover is the needle valve from tank to carburetter, and this nearly always leaks. As your contributor this week says, 'It should be a screw-down valve'. A point also in which the machine might be improved is a combined exhaust lift and current breaker, as at present one must lift exhaust and twist handle, and as the back wheel rim brake is actuated from same side as twist handle, it is somewhat awkward to apply brake and keep current oī. In every other respect the machine ful□ðlsmyhighestexpectations, and as I now have a trailer I expect some enjoyable runs from the combination.

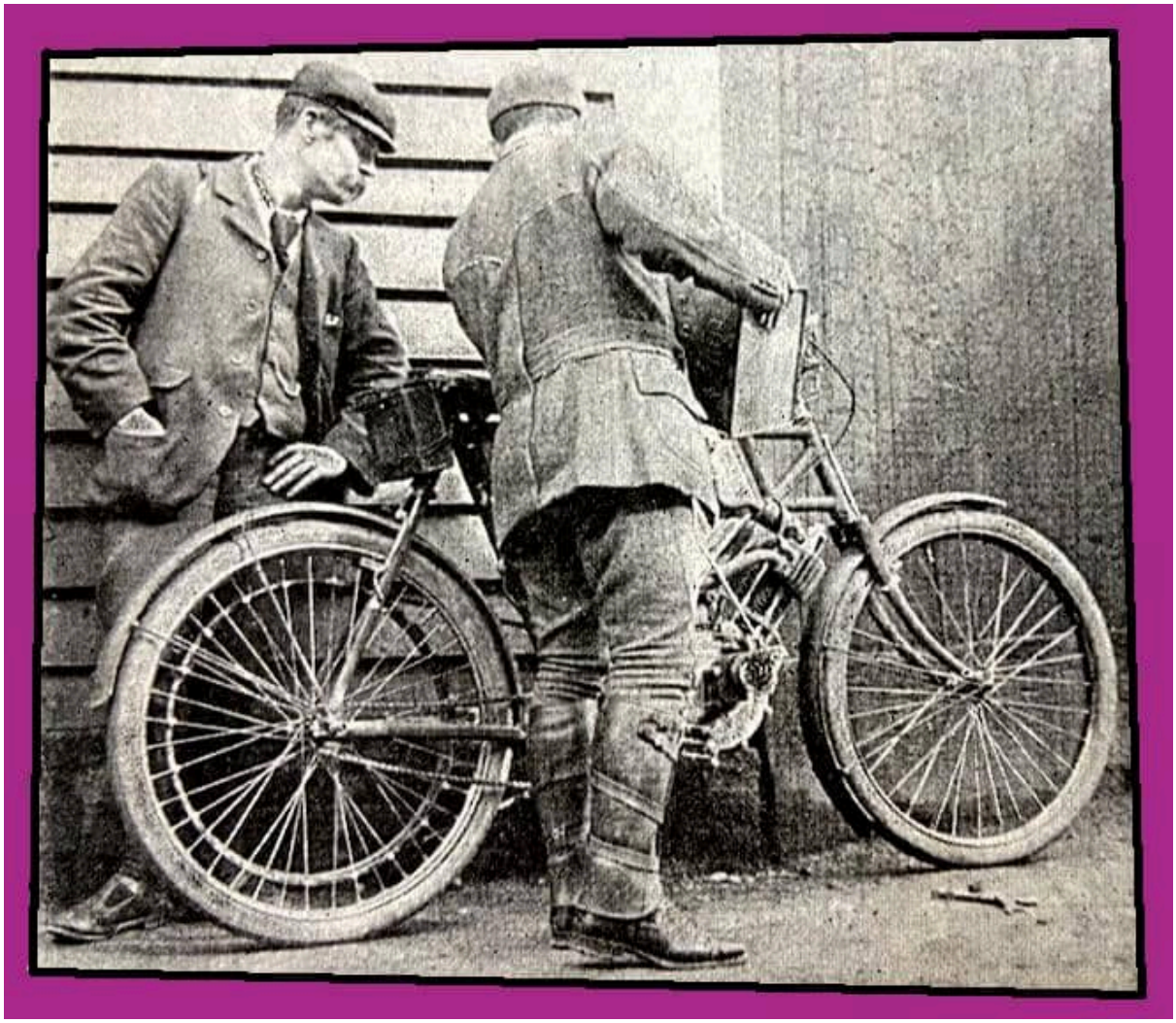
'**EHMW**'.

“Utility of the motor-bicycle—London, 1 o’clock pm.”

“WAP (PECKHAM)WISHESToknowif it is possible to build a aluminium cylinder piston; and, if not, what are the reasons?We believe aluminium has been tried, but it does not answer well, as it has a diīerent rate of expansionto steel or iron, and also loses its shapewhen subjected to considerable heat.”

“THE NAME‘DRYBATTERY’ratherimplies the dryness of the ingredients for producing the current, but it would be better if it were read as the absence of liquid in the battery, for if it were dry, no current could be produced. Havinga zinc enclosing case which forms one of the poles of the battery, it is in turn □ðlledwitha mixture of plaster of Paris, □ðour,salammoniac and chloride of zinc, the whole being well mixed into a paste with suīicient water and being placed in its position it quickly sets into its required form. Another mixture composed of carbon, peroxide of manganese, chloride of zinc and a little water, is then □ðlledintotheinside, a carbon rod is placed in the centre, and this rod forms the other pole of the battery. Thewhole is sealed at the top and ventilated. Thechloride of zinc is a deliquescent salt and one of its functions is to assist in keepingthe whole mixture damp. Thereis no necessity to go into the question as to how the

current is formed, but a steady though low one will be formed, and until the ingredients have become absolutely dry, this will go on, and on its giving out, the battery is removed entirely."



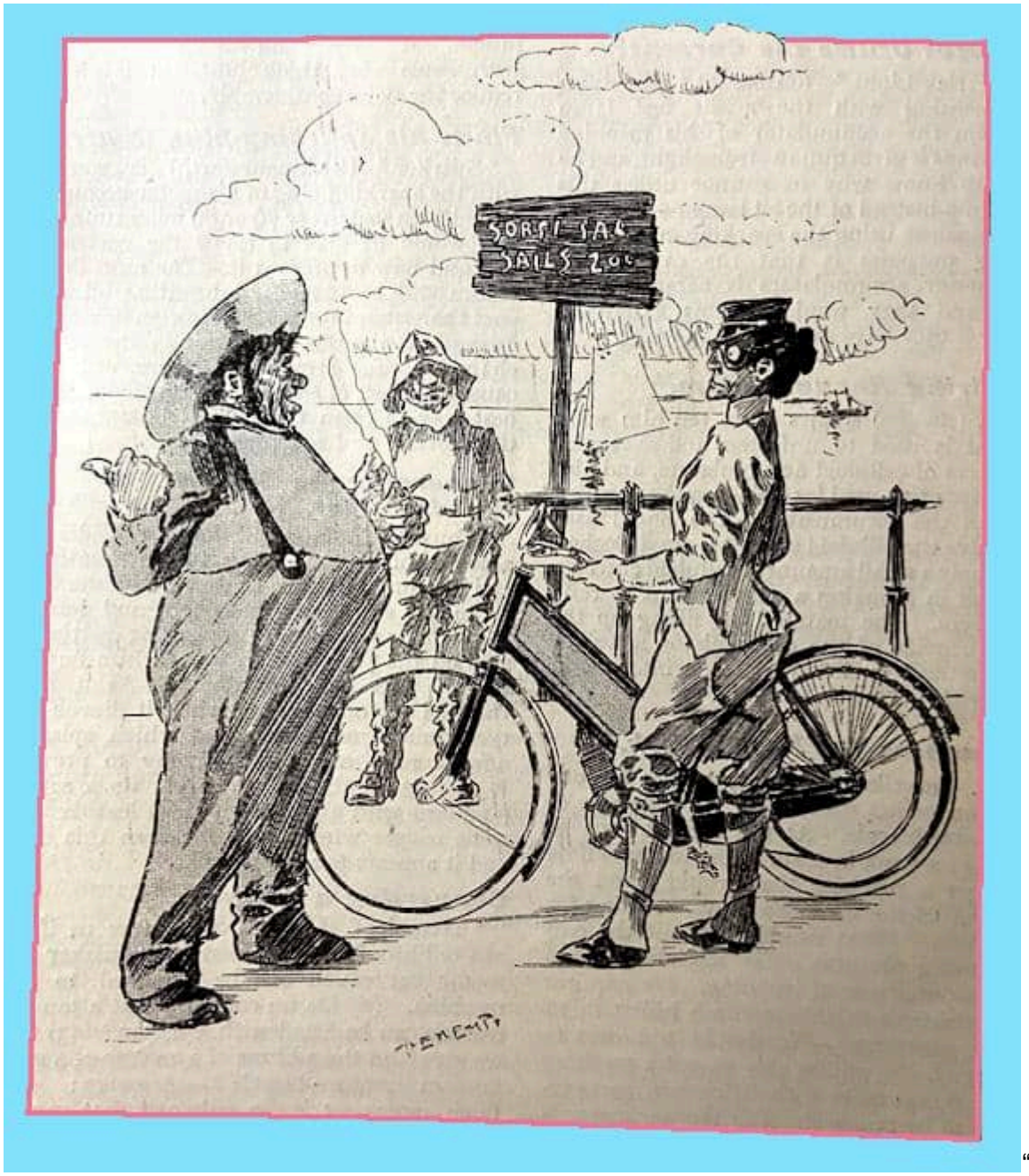
"Filling up."

"IT MUST BE PLAINLY EVIDENT to every one who is taking an interest in the future of motorcycle racing that it will be a diīicult matter to handicap a motor-bicycle fairly unless some ready and accurate method of making a test of the brake horse power of any particular motor can be applied. The bhp must be the determining factor in making a handicap. Cylinder capacity as a unit for rating cannot be accepted as entirely satisfactory, but, so far, it has been the best that could be adopted; but that it is no true criterion of what power a motor an develop is proved by the fact that there are motors made with abnormally small cylinder capacity, and designed to run at a very high speed, which can undoubtedly develop more energy than many of considerably greater capacity. As the power developed by any motor is calculated from the two factors of pulley leverage and speed, it can be seen that it would be an error to say that a 54×60 cylinder is capable of developing less power than a 60x65 unless the piston is taken into consideration."

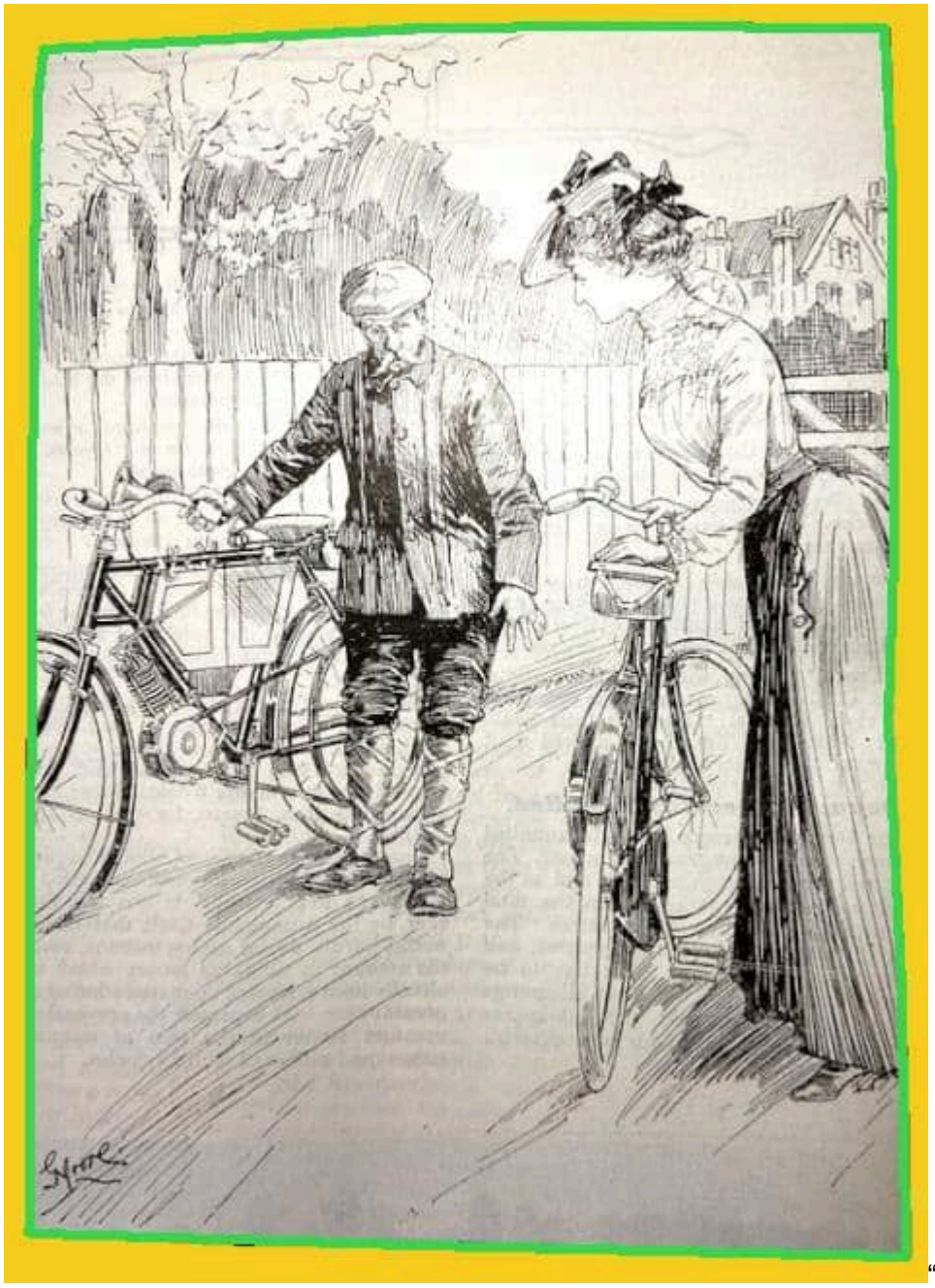
"AS A TOURING MACHINE, when properly managed, the motor-bicycle is unrivalled. Considering that this has been really the □ðrst motorcycle season, the number of successful tours accomplished is highly satisfactory and encouraging."

“THE CLEMENTMOTORshowedup well in the ‘Criterium de Provence’ races. Two machines were entered and ridden by Derny and Muller, who were second and third respectively, in 2hr 8min 8sec, and 2hr 29min 8sec, for the 120 kilometres.”

“THE MITCHELLMOTORBICYCLEhasestablished a big reputation for itself by accomplishing 634¾ miles in 24 hours on the Gar□ðeldParkbicycletrack, Chicago, USA, ridden by AA Hansen. This record was made on an ordinary stock machine of 2hp.”



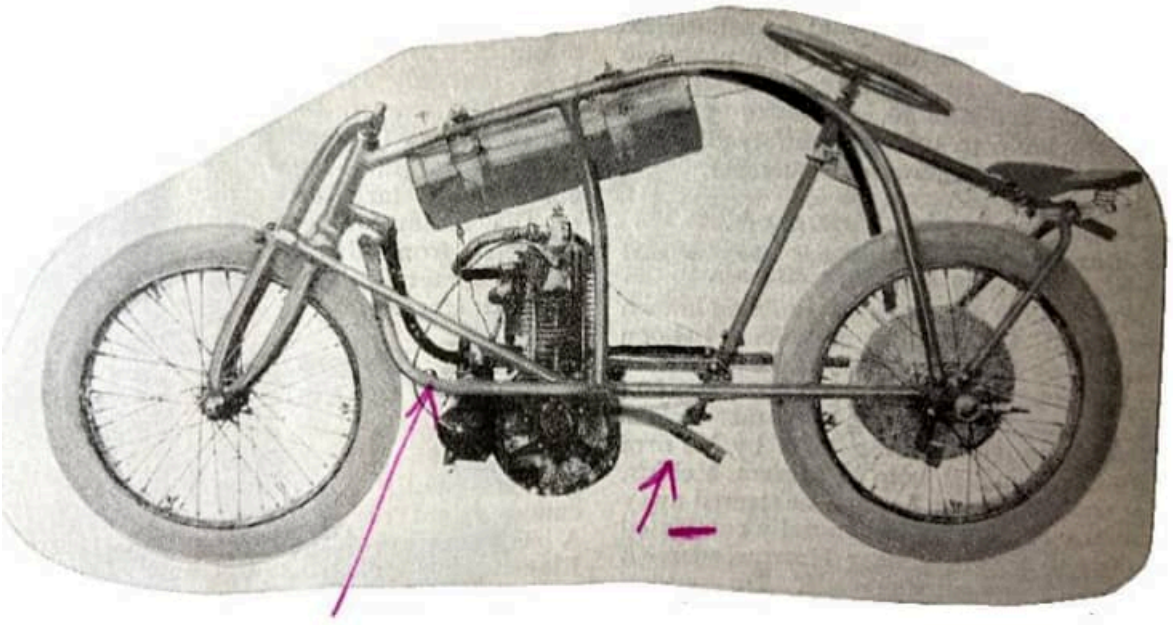
“A sad misunderstanding. **Fair Motorenia**: ‘My good fellow, I’ve had the misfortune to lose my plug, could you direct me to an emporium for the sale of such a commodity?’ **Bill Barnicle** (with sympathy): ‘Lost yer ‘plug’, mum! Why, do to ole Ted Crabshell—□ðrstshoponthe right—’e sells the □ðnestchawingtobaccer in the town!’”



"After having the motor-bicycle carefully explained, Miss Smythe de Joones expresses great surprise that a 2hp motor should be required for one man, and remarks that her pa's two horses frequently draw quite 20 people easily!"

"JACQUELIN, THE FRENCH CYCLE champion, who is now serving his time training in the army on week-days, appears on the racing track on Sundays for recreation. Since motorcycle races have become a permanent item on the programmes of Continental racing tracks, M Jacquelin has added this sport to cycling, and, thorough as he always is, he decided at once to build a motorcycle according to his own ideas. The appearance of the machine suggests something fantastic to the eye of the ordinary rider, but, considering the machine is for high-speed contests, the design contains some good features. In the full sense of the word it is only a bicycle, having only two wheels, otherwise it has no relationship with what is ordinarily considered to be a motor bicycle. The motor can develop 6-8hp, and the total weight of the machine is 4½cwt. A de Dion-Bouton motor with spray carburetter, and a cylinder of

114x120mm stroke and bore has been used [1,224cc]. The tubes of the frame are of 40 and 50mm, equal to to 2in diameter, and the forgings of the joints have been specially designed and made. The front fork is a compound one, and strongly supported; the steering gear is not regulated by a handlebar in the usual manner, but from the rear by a steering wheel. The three levers regulating the motor speed are underneath the steering wheel—one lever for mixing the gas, another for starting the ignition and the third for regulating the speed. The petrol tank is placed over the motor, □ðttedontheupper frame tube. It has two compartments, one containing 5 litres of petrol, and the other 4 litres of lubricating oil. A 4-volt accumulator supplies the ignition sparks. Both wheels are of equal diameter—760mm, equal to 30in; the front wheel carries a 3¼in and the rear wheel a 3¾in. diameter pneumatic tyre. The driver's seat is well in the rear, and it will require a considerable eīort to retain the seat when going at a high speed round a sharp curve. But Jacquelin knows how to do it, and he is sure of creating a sensation on his machine whenever he rides it."



"Jacquelin's Racing Motor-bicycle, shown without the belt." The arrows were, I assume, applied by a Motor Cycling reader in 1902 for reasons we will never know. In case you didn't notice, you're looking at a 1,224cc single…!

"THE RESEARCHES OF MR CARO, a Berlin doctor, to make acetylene gas useful for automobiles prove to be successful, and the application of the method may soon be felt by the industry. During the conference of the German Acetylene Association it was announced and demonstrated that the calori□ðcvalueofordinary air mixed with petrol and acetylene is 50% superior to ordinary petrol gas as hitherto used. The employment of acetylene will increase the working power and enable a lighter construction for the same speeds, so says the inventor."

"SIR,—I HAVE BEEN a cyclist for more than ten years, and always regarded the motor-bicycle as more or less of a freak till about a month ago when I happened to pick up a copy of Motor Cycling. In it I read how some riders were able to run their machines many hundreds of miles without any trouble on the road. This led me to make enquiries, with the result that I ordered a machine for my own use. I got some instructions from the makers as to how the machine should be controlled, and last Saturday started for my □ðrstride. My intention was not to exceed 12 or 15

miles, but the machine ran so well and the sensation of □ðyingalongwassopleasant that I found myself more than 20 miles from home before I could make up my mind to turn back. On the return journey I passed a large cycle club toiling hard up a steep hill. As I passed them, smoking my pipe in comfort, I remembered how often I too had worked hard up that same hill. About two miles farther on my engine suddenly stopped; I jumped oī and tried to remember all I had been told about 'mixture lever','sparking-plug', etc. Theseappeared to be all right, but on examining the petrol tank I found it empty! Themakers had assured me that the tank would run the machine 50 miles, and I had only done 37. However I concluded there was nothing do but pedal the machine to the nearest village. It was hot work and dry work, but that was not the worst of it, for I was soon overtaken by that cycle club, and my fellow-motorists will believe me when I say I got a good deal more advice than I wanted. One suggested that I should carry the thing (fancy calling my brand new £70 motor-bicycle a thing! Another thought a donkey barrow would be useful. Just as they had left me in peace a gentleman came along on a motor-bicycle and stopped to enquire what my trouble was; a drop of petrol was transferred to my tank and it was not long before we again passed the club and—well, 'he laughs best who laughs last'. This little incident has induced me to a resolution which I trust I shall always keep and I have written this in the that other motor cyclists will do the same. Whenevera brother motorist is seen in trouble on the road, always stop and oīer assistance; a drop of petrol, a little advice, or the loan of a spanner is not much, but it means a very great deal to one stranded on the road.
HDS."

"Sir,—I have much pleasure in forwarding to you my little experience of my ride to Birmingham and back on my 1½hp 'Excelsior' machine. Having thoroughly overhauled and examined every detail, I was in every way ready to start on my ride by a quarter to one o'clock, □ðrstpassing through Streatham and Brixton. I was soon on my way to Hyde Park, which I ran through, and eventually came into EdgwareRoad as rain was commencing to fall, and things did not look over bright ahead. I purchased a mackintosh and was oī again, buzzing along through Elstree and at last coming to the short but stiī ascent into St Albans, turning sharp to the left and was soon passing through Redbourne and Dunstable, going well. Leaving Dunstable soon behind, I was congratulating myself how well I was going (here rain left oī), when turning a corner, luckily going very slowly, I cannoned a horse, one of about 40, going to Barnet Fair. No damage resulted to me except a broken trace (cloth) and a crank bent. After the usual exchange of courtesies towards one another (gipsies), we parted. Arriving at FennyStratford, a local cycle maker, 'evidently in much demand', as his shop showed, kindly put aside everything and everybody for me. His name, I might mention, is Groves. This was my second stop from London—or, rather, Croydon—neither intentional. I was soon aboard again, and my little machine, if not too slangy, was fairly eating into the miles, not a mis□ðreoranytrouble, and at last after passing through miles of, I might say, not vary interesting scenery, was going through the pretty little town Towcester. Still going on, I reached Coventry at 7.45 without a stop from Fenny. Here my trouble began. I had had my Lincona mended by a local harness maker, which he had sewn, and as I reached the King's Head Hotel snap it went. Not to be done, I put the round belt I was carrying in reserve on, and after telephoning to Birmingham to my friend, started again. Hit and miss was all I could get; I examined wires as well as I could in the dark. Lo! one was broken on the handlebar; mending that, oī I started again; no better results, so after testing every wire, I had the inlet valve oī. Presto! there was my trouble—the collar reaching from the carburetter to valve had broken and had got in the spring, so decided to train it to my destination—rather hard luck, after going so well. On my return journey I left Birmingham at 3pm and arrived at Dunstable, about 80 miles, in pouring rain at 7.30. I never dismounted except for a second or so

to get the cape over my head and was on again. This I consider a grand performance, and I believe that it's only a 'Minerva' that would do it. Rain stopped me, as I was afraid of getting through London with the roads so bad.
CJHussey."

"SIR,—IN REPLY TO the letter from Francis E Harding, I might say I always use a small length of thin cord with brass thimbles. With this it is quite easy to mend a puncture on either back or front wheel, or tighten up the belt by lifting up a wheel, fastening the cord round any gate or guide post I may be near.
HB."

"GEH (Retford) is going for a tour of about 350 miles on his motor-bicycle, and would be glad to know of the various odd parts he should take so as to be quite able to replace any part necessary, and also a □ðrst-class lamp, as the days are now shortening rapidly and he may have a fair amount of night riding to do. These are the details he should take: Two sparking-plugs and washers, an exhaust and inlet valve with springs, contact blade and screw, some insulated and bare copper wire, good pair of cutting pliers, small □ðle, adjustable spanner, screwdriver, repair out□ðt for tyre repairing, oil can for paraīin, some rubber, insulating tape, a piece of No I2 spoke wire, to make a belt hook. An excellent lamp is Lucas's Holophote. Brown Bros also make a specially strong lamp for motor-bicycles."

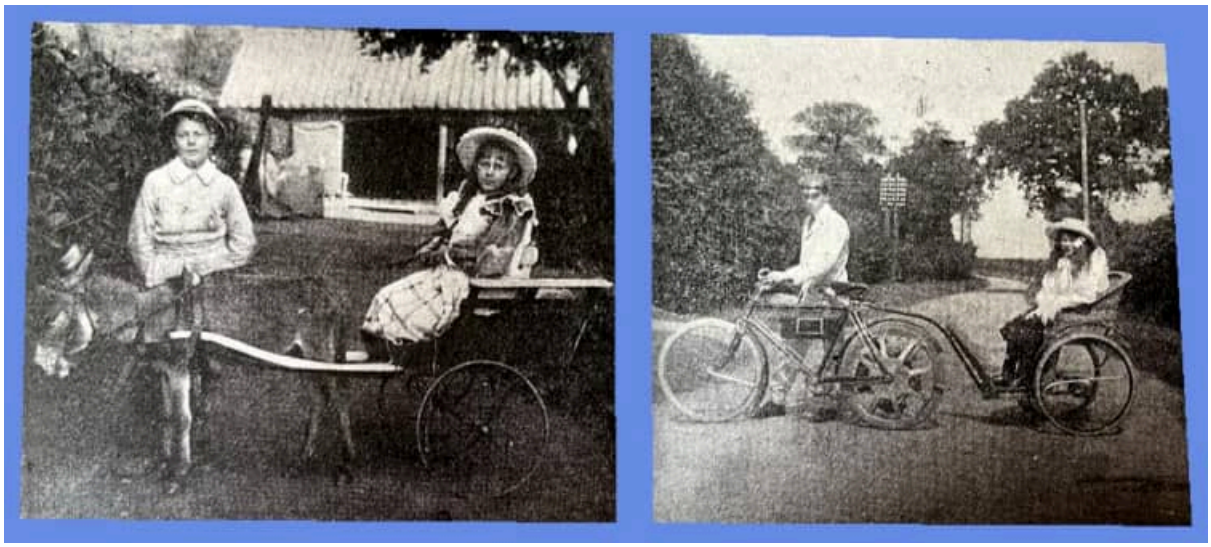
"A NOVELTY IN THE WAY of garments introduced by Messrs Reveley and Haggart, of New Broad Street, London, EC, causes one to wonder why so simple and eminently practical an idea was never thought of before. The disadvantages of trousers are in the new garment completely avoided equally with the disadvantages of separate knickers and leggings. At the same time, the advantages of both methods of dressing the legs are retained. For the □ðrst time within our experience a close-□ðtting legging is provided, which does not entail a cumbersome mass of material at the knee, and we feel certain that motorcyclists, apart from golfers, tourists and other sportsmen will immediately realise the bene□ðts of the new design. The garment will be made in any material, and as Mr Reveley is himself a motorcyclist, it follows that he is fully conversant with the requirements of those who drive the self-propelled bicycle."

A new means of transport demanded its own style of clothing.

“AT THE CANNING TOWN TRACK J Van Hooydonk went for an endurance and economy test on a ‘Phoenix’ motor-bicycle, fully equipped and □ðttedwitha 70x70mm [269cc] Minerva engine. A distance of 200 miles was completed in 6hr 42min 52⅖sec. With the exception of a momentary stop to tighten up the strap the run was to all intents and purposes a non-stop one. The petrol used was one gallon. Five pints were measured out of the tanks after the distance had been covered, so that another 50 miles could have been covered with the supply carried on the machine. In one hour 29 miles 600 yards was covered; in three hours, 87 miles 100 yards; six hours, 177 miles 1,550 yards; and in the last hour 30 miles I,550 yards were reeled oī, and the last mile occupied 1min 49⅘sec. The times were taken by Mr Ebblewhite, NCU, and Mr F

Straight, NCIU, judged." [Note those names, Messrs Ebblewhite and Straight became household names in motorcycling circles.]

"'ELECTRICLIGHT'(CAMPHILL)hasbeen experimenting with the 4-volt test lamp run from the accumulator of his machine and he □ðndsitgivesquite a strong light, and he wants to know why he cannot utilise this for a lamp instead of the oil lamp?—Theonly reason against using the sparking current for lighting purposes is that the capacity of cycle motor accumulators is comparatively small, and they would become exhausted quickly if they have extra work to do."

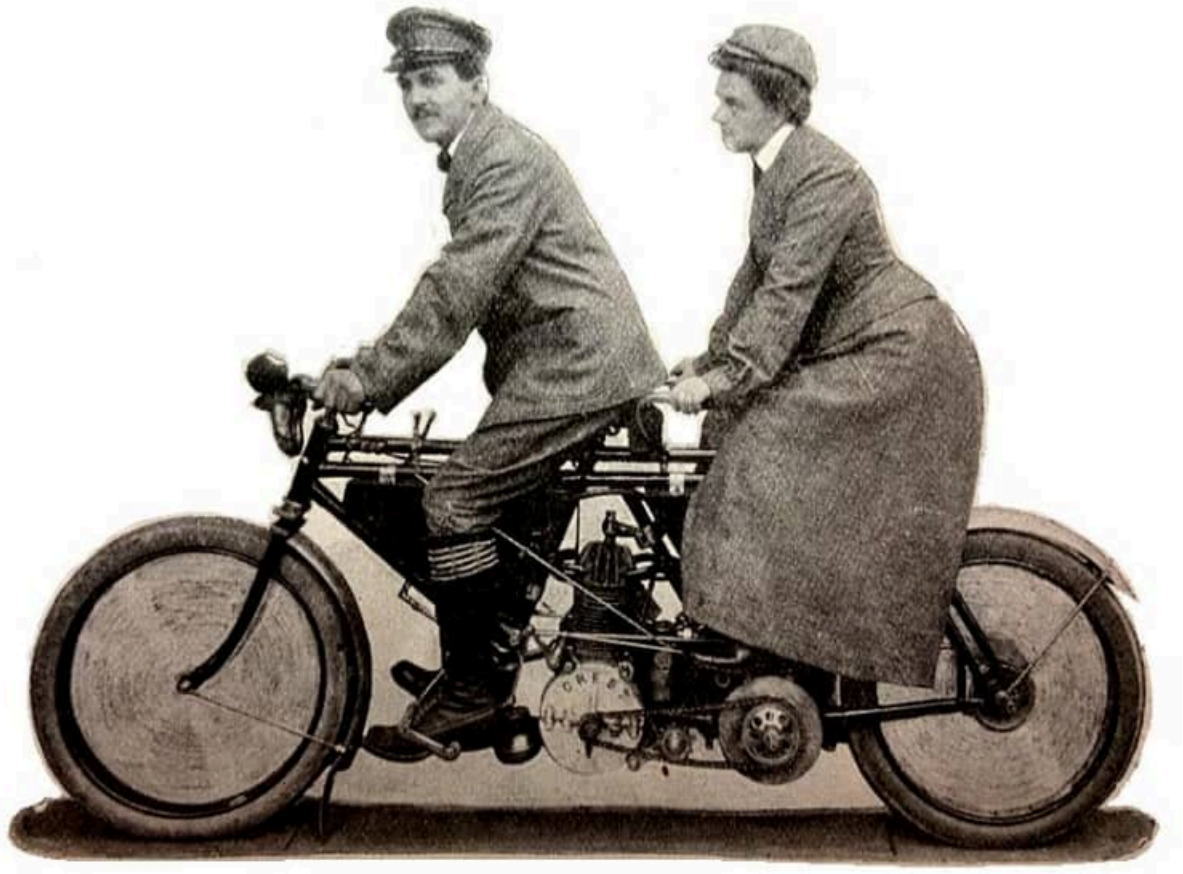


"An interesting contrast: Brother and sister in India….andthe same couple, a few years after, on the Great North Road."

"ON SATURDAYLAST,MREGYOUNG,ofNottingham, set out with the intention of riding to London and back again to Nottingham in the day on a motor-bicycle. Thetrip was satisfactory in every respect, and proves that, properly handled, and with a reasonable amount of care, the motor-bicycle is a sound and reliable means of travelling, and also very cheap. Thetotal cost of the return trip was 3s 9d, which was the cost of petrol. Theonly repair needed throughout was a puncture in one of the tyres."

"THE AMERICANSARENOTHINGifnot original in their ideas, and the machine which we illustrate possesses some strikingly original features in its design. It is, strictly speaking, nothing less than a two-wheeled autocar, as it is provided with most of the mechanical features of a car. Thus, the motor is started up with a crank handle and is □ðttedwithatransmission gear with two speeds forward, the fast speed giving 40mph on the level, and the low speed—so the maker claims—will take the machine up a gradient of one in three. Themachine was designed by a Boston businessman, a Mr JJKingsley,and it was built at the Crest Automobile Works, Cambridge, USA. Themotor is a 3½hp air-cooled type, and is mounted vertically in the frame.Thepower is transmitted by a chain from the motor sprocket to the change gear, which is mounted at the rear bottom bracket. From this a chain goes to the rear wheel driving sprocket. Thefront rider has entire control of the engine, and instead of the ordinary pedals being □ðtted,a kind of rest with controlling pedals take their place. Thus, the driver's right foot rests on a pedal lever which by a pressure of the toe throws in the fast speed, and the heel operates the slow speed. Theleft foot regulates the brake, which is of the band type, acting on a drum on the rear hub. This drum is six inches diameter and one inch wide. Thespeed regulating levers are mounted on the horizontal tube of the frame, and there is also a lever operating the exhaust box cut out, so that when running through the open country every fraction of power may be got out

of the motor. Theforward tank carries the coil, batteries, and lubricating oil; the petrol tank is □ðttedinthe rear panel of the frame and holds □ðvegallons,suīicient to run 300 miles. Themaker states that the machine is very easyto manage in crowded streets; and although it is so heavy (325lb), it can be steered hands oī when running at 40mph, and its low centre of gravityentirely prevents side-slip. When descending hills, the motor can be thrown out of gearby means of a clutch. A large double-stroke gongis actuated by the driver's left heel. Themachine has run 2,500 miles without the slightest mishap so far. It is noteworthy that there does not appear to be anything in the way of a spring clutch to take up the shock of the engine □ðttedtothis machine."



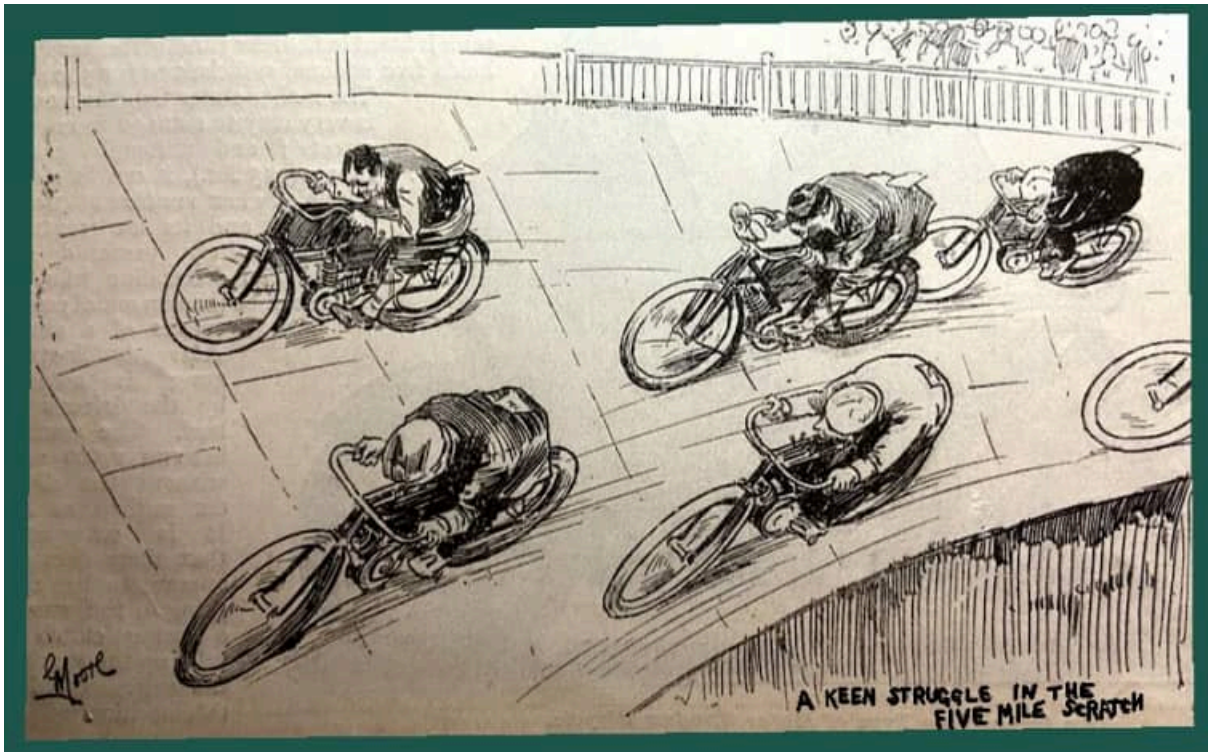
"An interesting type of Motor Tandem Bicycle."

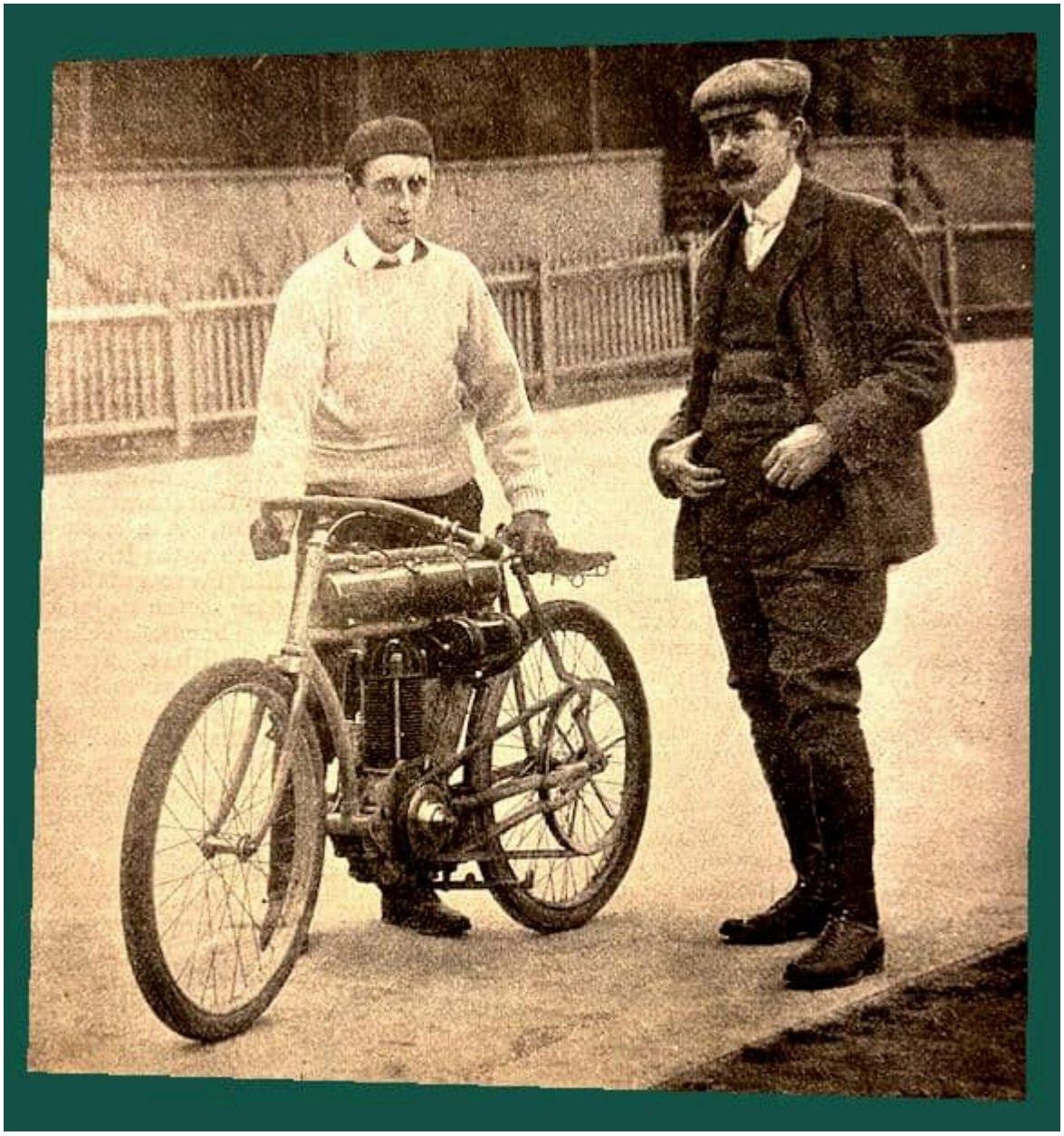
"NEXTSEASON'SMINERVAmotor will be even a far better one than the 1902. Perhapsthe most striking innovation will be the adoption of a mechanical inlet valvegiving, it is claimed, 20% greater power. Thesurface carburetter is to be replaced by a very eī icient type of spray. The combustion chamber is to be cast in one piece with the cylinder, givingsimpler construction, whereby loss of compression becomes impossible. Radiatorson the lower part of the cylinder will be dispensed with as unnecessary. Thedimensions of the new engine will be 66x70mm [239cc], giving with the improvements adopted 2hp."

"THE LASTOFTHEBIG race meetings promoted by the West Ham United Football Club was held on Saturday last at Canning Town before about 3,000 people. Twomotor cycling events were included—a □ðvemileshandicap and a □ðvemilesscratch. In the handicap there were 14 starters out of 16 entrants, and these were allowed to ride all in one heat. FWChase (2¾hp Bat) was on scratch, giving such men as Hooydonk 30sec, H Martin and Tessier35 secs., while the limit man, WRHerwin (1½hp Clyde—Simmsmotor) had. an allowance of 2min 30sec. H Collier—on a local make*, □ðttedwitha 2¾hp De Dion engine (45 sec)—was placed □ðrst,Tessier

(3hp Rex)ten yards behind, and FW Chase third; time 6min 39⅘sec—a good handicap by F Straight. The scratch event brought out nine starters, H Martin being an absentee owing to short-circuiting troubles. FW Chase (2¾hp Bat) quickly ran away from the □ðeldand□ðnishedapopular winner by 100 yards in the time of 6min ⅘sec, which is the fastest ever done in competition. Tessier, in spite of losing two laps owing to his belt coming oī, □ðnishedsecond,andW Parry (2¾hp Minerva) was third."

*H Collier, of course, was Harry Collier of the Collier family and the "local make", of course, was Matchless. As you'll see in 1907, Harry's brother Charlie rode a Matchless to victory in the single-cylinder class of the □ðrstTT.



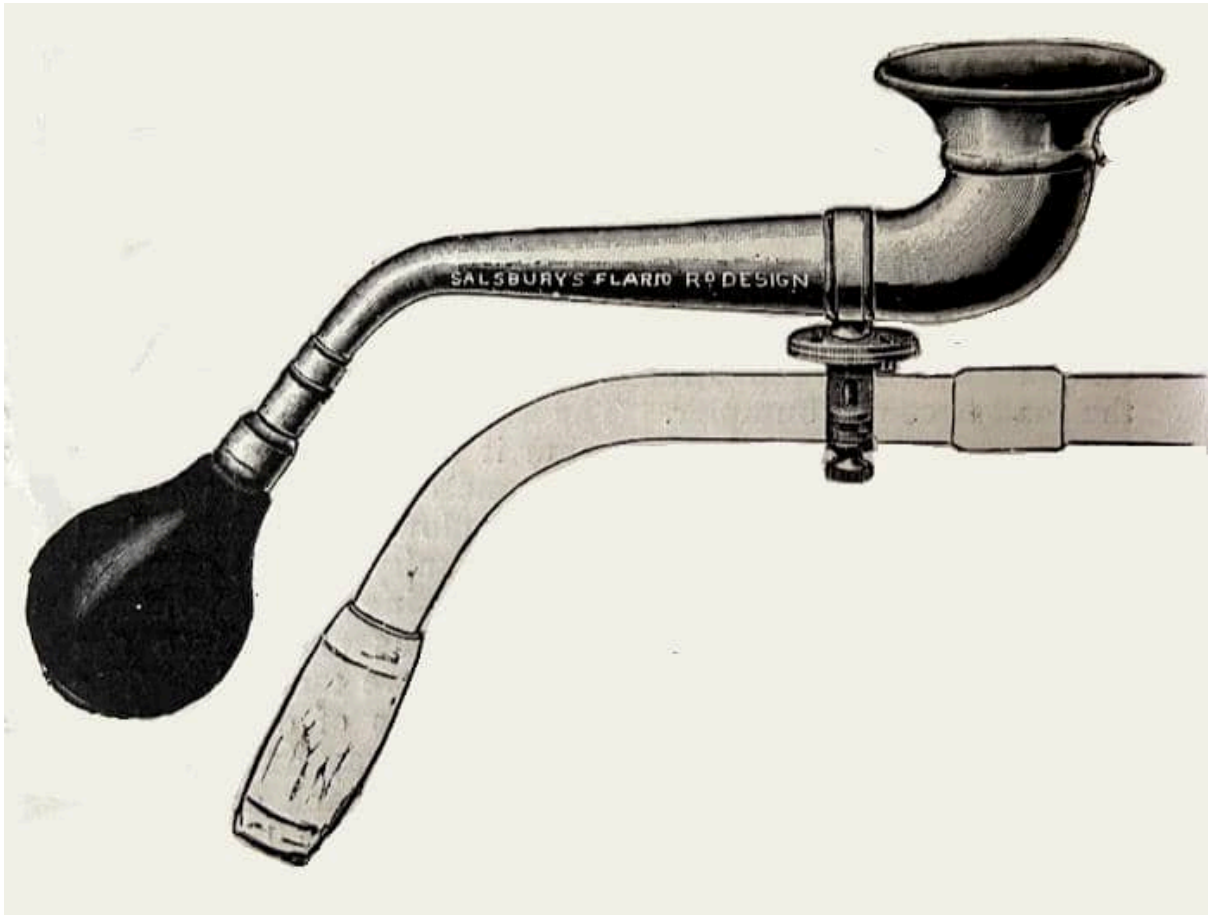


“Chas and the Bat Motor-Bicycle on which he recently beat records, at the Crystal Palace Track. Mr Batson, the designer of the motorcycle, is standing by Chase.”

AS PART OF A SERIES entitled ‘Some Experiences of a Cyclist in the Transition Stage’ a Motor Cycling correspondent recorded his attempt to make a 100-mile non-stop run: “I reckoned that the best average pace would be about 20 an hour on good roads, but as I am living at least ten miles from the good roads…it was decided to start early on the Sunday morning and to return home in time for the mid-day meal. I was con□ðdent that my ‘no-trouble’ Excelsior with a 1½hp Minerva engine would go through all right.” It did, too, completing 100 miles (measured using milestone on the Great North Road) in 5hr 32min at 130mpg. “The cost of covering 106 miles had scarcely exceeded one shilling! There had ben no trouble with the engine or any parts, and with an accurate adjustment of the contact points, the machine was taken out in the evening with the trailer behind, and another twenty miles were covered. And it was going splendidly all evening.”

“MR SALE,OFLUTON,who is one of the agents for the Quadrant Co, recently accomplished a very successful tour of 900 miles on a standard pattern 1½hp Quadrant autocyclette. Mr Sale started from Luton last week for a run to Edinburgh, and travelled via Doncaster, Borobridge, Darlington, Newcastle, Berwick, Dunbar, Edinburgh, returning via Glasgow, Lancaster, Preston, Wigan, Warrington, Newcastle-under-Lyme, Stone, Lich□ðeld,Coventry,and Towcester. The longest day’s journeys were from Borobridge to Edinburgh, about 200 miles, and homeward from Lancaster to Luton, about 240 miles, doing the latter, including all stoppages,inside 13 hours. Themotor behaved splendidly throughout the whole journey, giving no trouble, not even having to change the sparking plug. Therun was not attempted to form anything in the shape of a record, but rather to prove the reliability of the machine.”

“MESSRSSALSBURYANDSON,of Green Street, Blackfriars, have just introduced a new pattern horn for the use of motor. cyclists. It is claimed for the new pattern that it is better suited to the shape of the cycle handlebar, and as the clip is on a turntable, the horn can be placed anywhere where it is most convenient to the user.

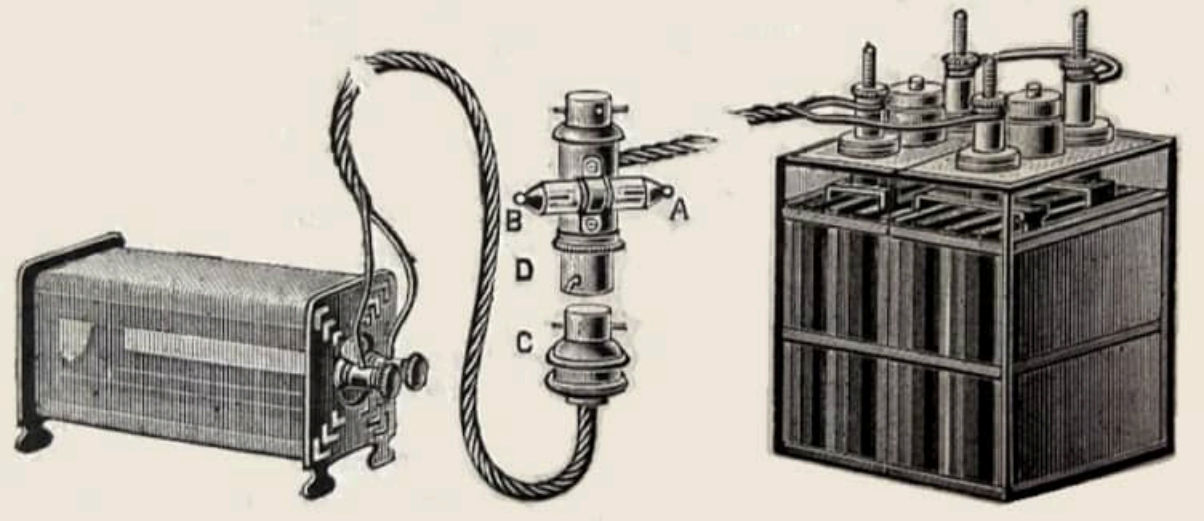


TheSalsbury motor cycle horn.

“The ever-increasingpopularity of the motor-bicycle has made the lighting question, now that the long nights have arrived, of paramount interest to the trade and cycling public alike. Messrs Miller and Co, the well-known lamp makers, have just introduced a special type for the motor cyclist. This has a 3in lens and a 1in wick; and □ðttedasitis with a best quality re□ðector,thelamp gives a splendid light. Thesprings are strongly made to withstand the greater vibration, and by using the handle the lamp may be lifted oī the bracket and used for inspecting the machine.”

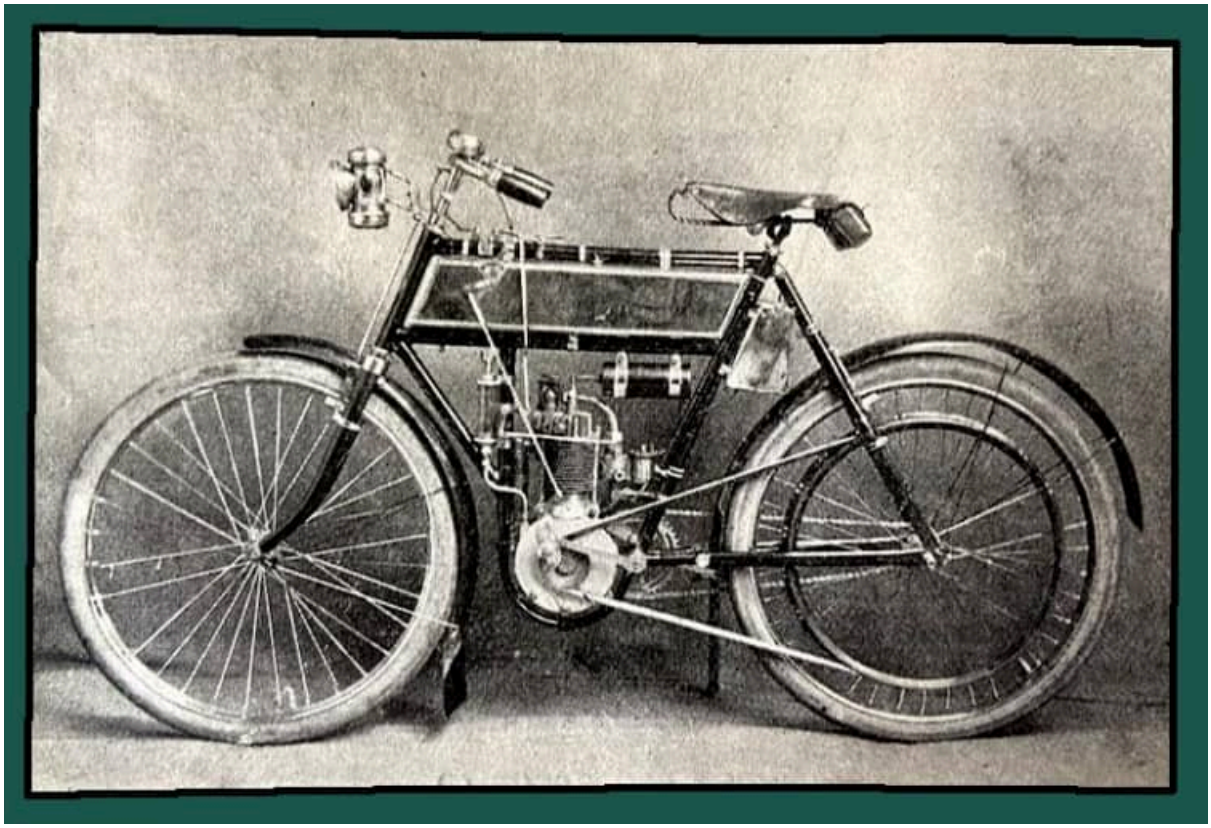
Miller lighting and ignition systems survived well into the electrical age.

“A NEW AND CONVENIENT piece of apparatus for re-charging accumulators has been placed on the market by Messrs Peto and Radford, of Hatton Garden, EC. In the illustration the adapter, D, is to the lamp holder and the lamp is then attached to the adapter. The two wires are then placed one at each end of the pole □önder, A-B, when the colouration of the liquid at one end will show which is the negative wire. The wires can then be attached to the terminals of the accumulator for the purpose of re-charging the latter. For charging large batteries, where the ordinary 16 candle-power lamp does not pass enough current, the resistance frame shown can be used in place of the lamp by means of the connection, C, and the process of re-charging will be greatly accelerated. The price of the adapter and pole □önder, which is all that is necessary for, charging motor-bicycle batteries from the lighting current, is l0s 6d. The resistance frame costs £20s 6d.”

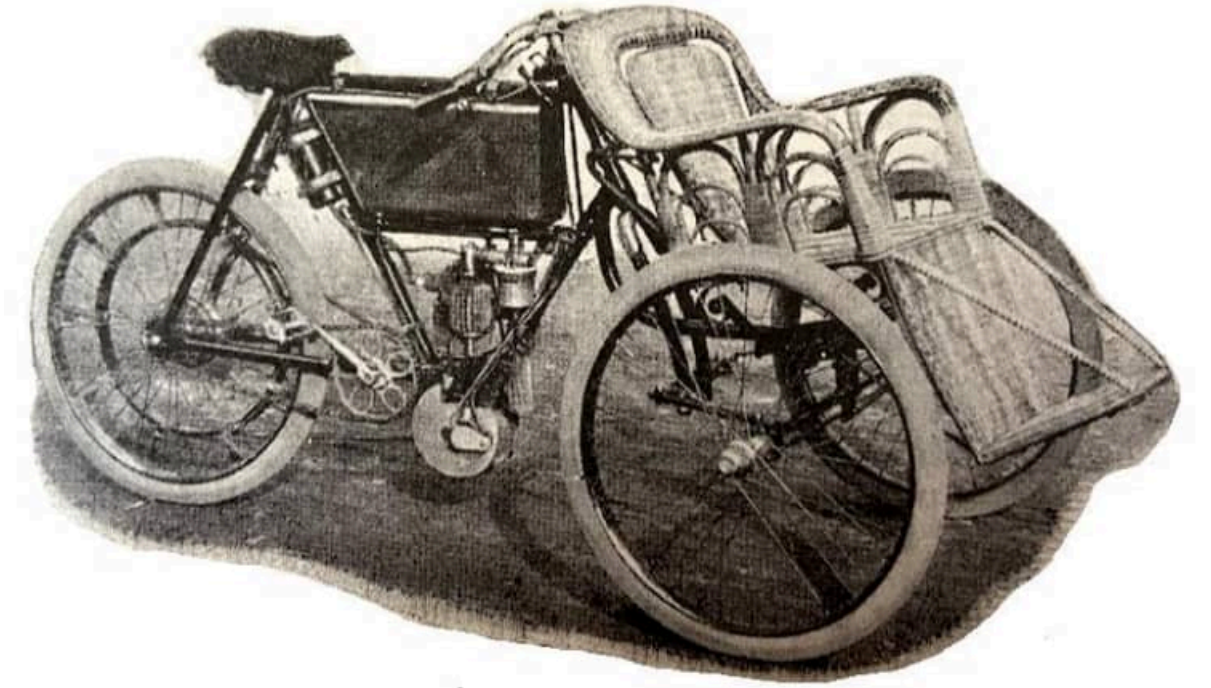


Theancestor of the modern battery charger, courtesy of Petoand Radford.

“THE JESMONDMOTOR-BICYCLEismade by the Jesmond Cycle Co, Newcastle-on-Tyne. The frame is a registered design, and diīers from anyother motorcycle frame on the market. The makers are enabled by this construction to place the enginein a vertical position, which is admitted by almost all motor expertsto be mechanically correct. Themethod of attaching the engine to the frame allows the rider to getat both valves, cylinder and piston rings, so that he can clean and adjust without removingthe crank case from the frame. Only three levers are used ; sparking advance, gas lever and exhaust lifter…Thecarburetter is a spray with a □ðoat feed, which gives excellent results. Thecoil is □ðttedclosetothe engine. Thestroke of the engine is 65x70mm [232cc], 1¾hp; 2¼hpcan also be □ðtted,whichis 75x75mm [331cc]. Theframe is built on Renold’sdouble butted tubing, with a specially made bridge steering column, and very large diameter front forks, which are also heavily butted and well □ðttedtothecrown.”



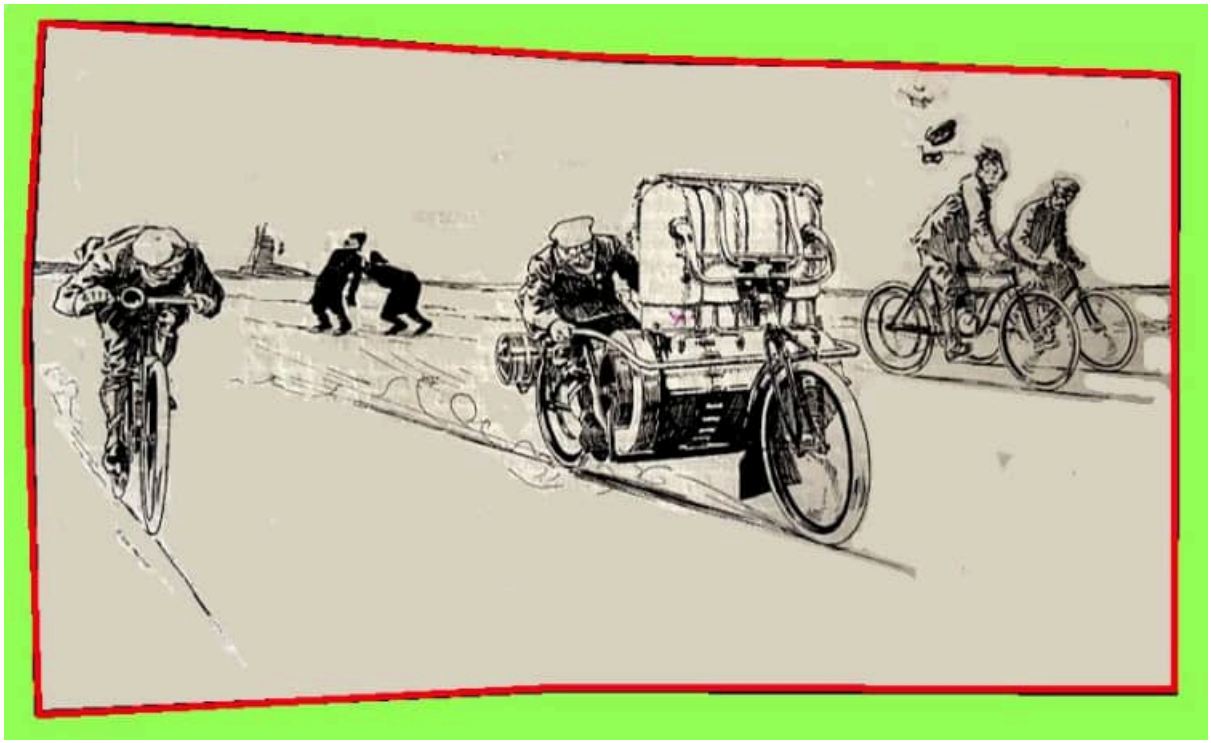
The Jesmond hailed from Newcastle-upon-Tyne.



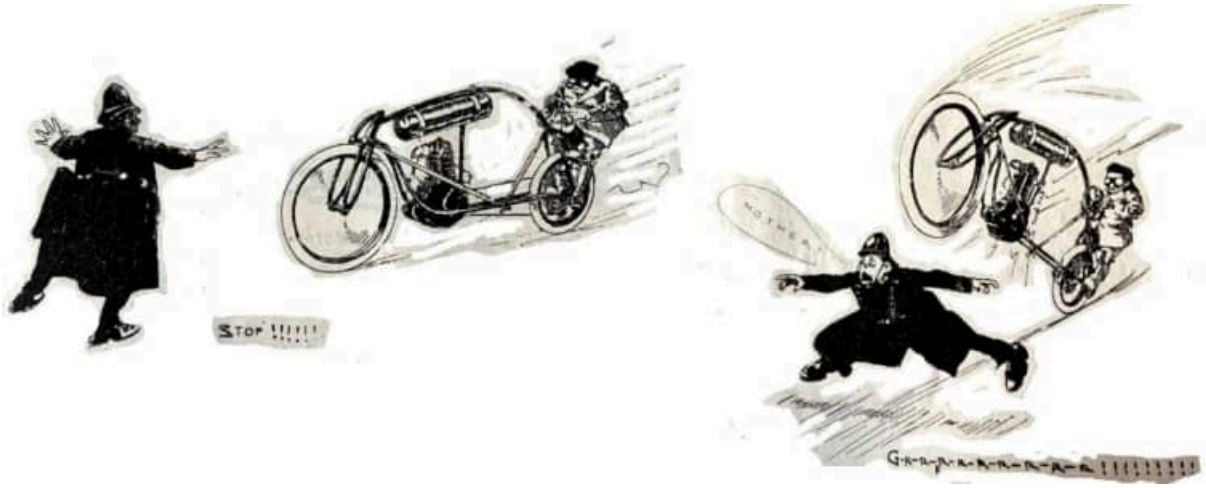
"This is a useful attachment for converting a motor-bicycle for all practical purposes into a three-wheeled tandem. It is very strongly made in wicker work, and carried on comfortable springs, and can be readily clamped to the front forks and frame of the bicycle, and as readily detached and the wheel replaced into the forks. The attachment is rigid and safe and steering is quite as good as with the single wheel. The illustration shows the carriage attached to a standard pattern Werner motor-bicycle. The design is registered by Mr JJ Leonard, from whom further particulars are obtainable. His address is 107, Brockley Grove, London, SE."

SEVERALOFOURREADERShaveaskedus whether petrol or motor spirit can be readily. obtained in India or the Colonies, and there being some doubt on this point, we wrote the Anglo-American Oil Co on the matter, and from their reply it is evident that the chances are it is not obtainable: 'Dear Sirs, We regret exceedingly that we have no satisfactory information to hand you upon the question of obtaining petrol in India. We have often tried to ship consignments to the Far East, but can □ðndnoshipswilling to carry it. We will again communicate with our New York friends with a view of learning if they can enlighten us as to supplies of petroleum spirit in India or other Colonies.'"

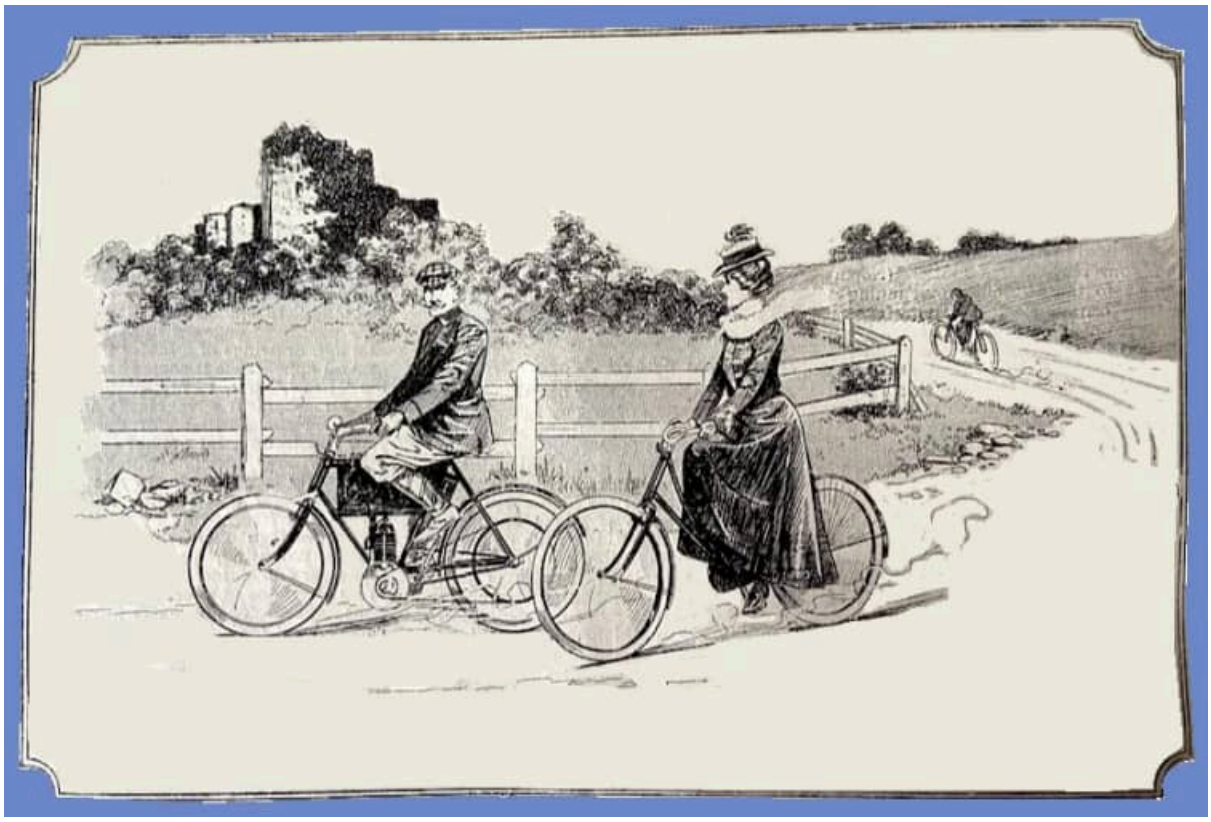
"PETROLIN INDIA. The Assam Oil Company, Blom□ðeldHouse,London Wall, London, send us the following: 'With…regardto petrol in India, we have to inform you that this company can supply it there in any quantity. We have supplied some motor works in Calcutta, and could always let any of your readers out there have any on hearing from them."



"Little Miggs(quite a mechanical geniusin his way)was not content until he had built a 4-cylinder 170hp engine into his motor-bicycle frame! Miggsis con□ðdentofaccomplishing the journey to Brighton and back in the hour!" 170hp? Cramming 100 miles into an hour's riding? Clearly a cartoonist's fantasy…



“The police problem—a □ðctionalsolution.” …andthis, I believe, is the □ðrstimageofa wheelie which, evenwith a monstrous 12hp pacer, was another cartoonist’s fantasy.



“**She:** ‘Do you think the motorcycle has come to stay?’ **He:** ‘No, I think it has come to go, and it goes very well too, at least mine does.’”

"A snap-shot by the way. A Member of the Staī of Motor Cycling consulting his map."

"THE 'FAFNIR' MOTORS FOR cycles are being handled by Messrs G Strauss and Co, Upper Thames Street, London, EC. It develops 1¾hp with a 65x70mm cylinder [232cc]. It can be adopted in three diīerent positions and will develop a maximum speed of 26mph. These motors are manufactured by one of the largest continental □ðrms with a high reputation for the excellence and great accuracy of their workmanship. A useful little booklet, giving many useful hints on the management of motor bicycles, is supplied by the company. In addition to the small power motor they also construct various sizes for cars up to 11hp."

"THE MOTOR CAR CRAZE as a reason for divorce is not a fancy but a realised fact. A Chicago medical practitioner has two motorcars and his wife claims neglect on account of over devotion to them. The reason was suīicient to procure the lady a divorce, and the husband is now able to devote his leisure time to his cars."

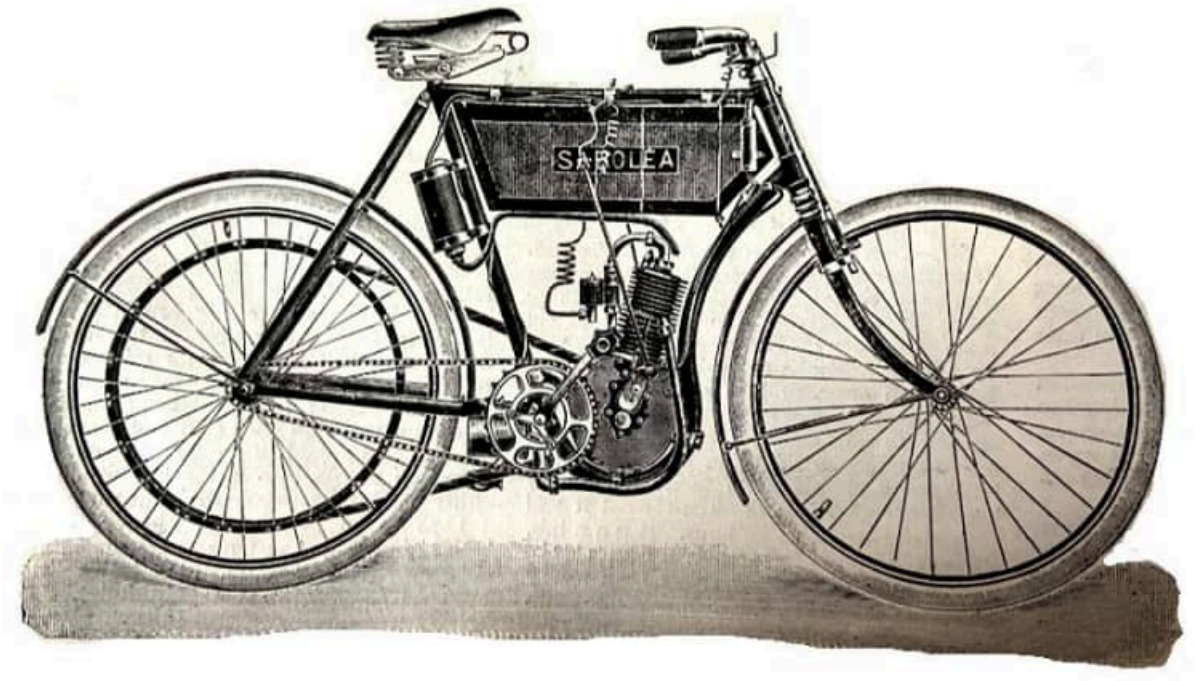
"SIR,—I TAKE THE LIBERTY of writing to you in the interests of the very large number of motor cyclists, present and prospective, who do not want to scorch. There has been a great deal written in your valuable and instructive journal from time to time about the high speed which the various makes of motor-bicycles are capable of attaining, but little or nothing of what, in my opinion, and I am sure in that of a very large number of motor cyclists, and those about to become so, would be a much more desirable mount than the present high-speed machine—I mean a bicycle geared to a maximum of, say, 15-18mph…I am quite sure there would be a big demand for a bicycle made on the above lines by a good maker, especially if the price were moderate. I will be glad to see the opinion of any others of your readers on the subject, especially if they go in for touring as I do.
'Gareloch', Helensburgh, NB."

“NO LESSTHAN36motor vehicles were used by the two Army Corps during the recent German manoeuvres; 20 of the vehicles were for the transport of oīicers and intelligence service, and 10 were transport trolleys, besides several Thorneycroft and Fowler road engines, which did excellent service. Forthe □ðrsttimemotorcycles were used for transmitting dispatches, and they earned high praise for their excellent work.”

“Military motoring in the States. Thelatest Motor Corps in full marching order.”

“THE MOTORCYCLINGCLUBhasdecided to hold runs every Sunday throughout the winter and, as there are now so many motorcycles which can be relied upon to reach their journey’s end no matter what the weather be like, it is anticipated that the □ðxtureswillbewell attended. Another important decision which has been arrived at has reference to the direction of the runs. In view of the larger portion of the Motor Cycling Club being residents of the northern suburbs, it has been decide that, instead of the runs being in all directions round London as hitherto, they will be arrangedfor the northern side only during the winter unless the membership from the southern side increase to such an extent that the southern district runs can also be organised. Visitors are cordially welcomed at any of the runs, and one of the chief objects of the club is to develop the social side of motor cycling. Theruns are not speed events, and any one having trouble on the road can be sure of assistance from fellow-members.”

“THE GENERALAPPEARANCEOFtheSarolea motor-bicycle is pleasing, the frame being built with symmetrical outlines. Themotor is placed almost vertically in a loop formed in the main tube. It is of 1¾hp, and drives by means of the usual twisted hide belt on the rear driving rim. Only two levers are employed for regulating, one for the compression tap and the other for the spark advance. Thereare one or two notable improvements adopted in the construction of the motor. Thus the □ðywheelsareconnected with the piston rod in a special manner, and the axle and bearings are of greaterlength than usual. Thepinion and cam are outside the crank chamber, and can thus be easily got at. A 2¼hpmotor is in course of construction and will be put on the market shortly. Thecarburetter adopted, and which is found to givevery uniform results, is the ‘Fabriques Nationales’ Stenos type. Eīicient brakes and mudguards are □ðttedto the machine.”

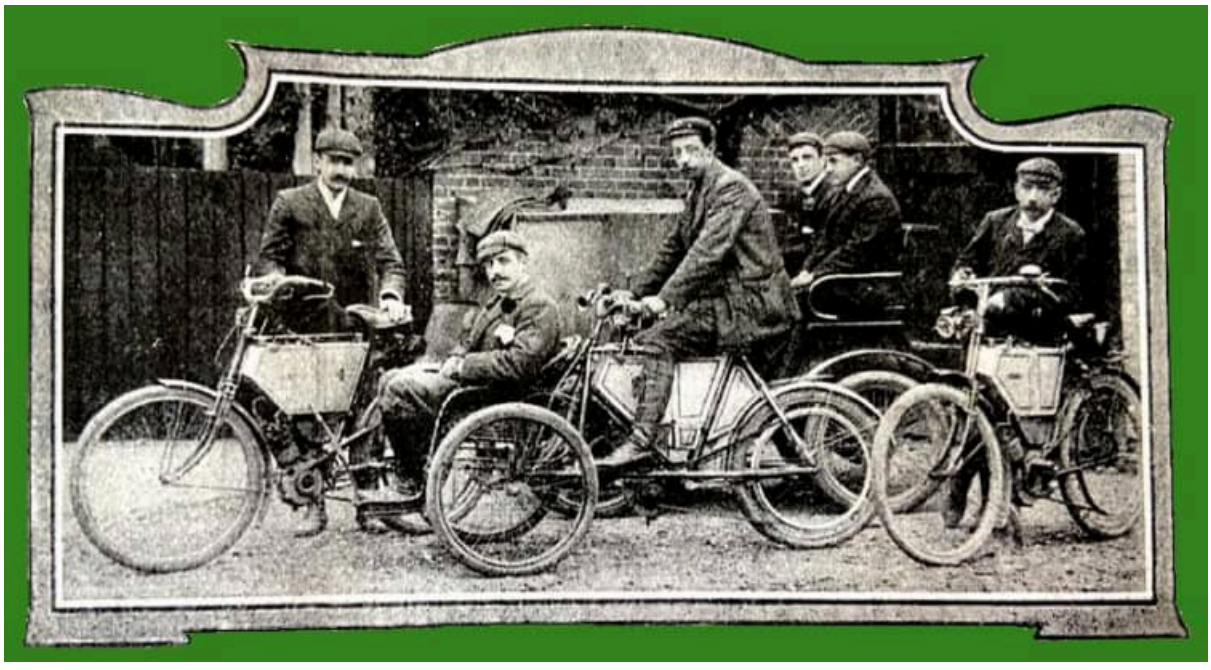


The Sarolea featured an FN carb—FN had just launched its own motor cycles.

"ALTHOUGH MAKERS AT THIS time of the year are very cautious as to what they allow. to leak out in regard to their new patterns, it is certain that the standard horse-power of motor-bicycles will be increased very considerably. The Quadrant standard will be a 2hp, but they will also market a 3hp engine. Humber's new engine represents 2¼hp, and they will also have a 3½hp for heavier or faster work. [As you'll see, 3½hp models would become the backbone of the industry for years to come.] The Rex motor will be a 2½hp and it is stated that they will have a 3½hp engine, water cooled. The Excelsior 2¾hp will doubtless be the staple line of Bayliss Thomas, while the majority of the other makers will all doubtless increase the size of their engines."

"TWO SEASONS AGO the motor-bicycle as a practical and reliable machine was almost unknown. True enough, the motor-tricycle was a thoroughly practical machine in the late nineties and quite a 'boom' in them was created, but it was a machine that just failed to hit the public fancy—a factor that was necessary to achieve success. But the motor-bicycle came forward out of comparative obscurity and at once achieved success; its handiness and simplicity gave it a good start of its three-wheeled rival. Much was learnt in 1900 and 1901 and it is interesting to follow up the development of standard machines. In 1900 the question of position of the motor was considered a great deal from the point of view of appearance and eﬃciency. The front position as adopted by the □ðrst Werners was looked upon by many as being the only one likely to survive, and at least two famous □ðrms adopted it as standard: But a season's experience soon proved that the front position was far from the best, and after much variation a position somewhere between the two wheels is now recognised as being correct. The question of what is the minimum powers permissible is still to some soon proved that the front position was far from the best, and after much variation a position somewhere between the two wheels is now recognised as being correct. The question of what is the minimum powers permissible is still to some extent an undecided one. The □ðrst motors, claimed as 1¼hp, were far from being eﬃcient and probably rarely developed more than ¾hp, and for hill climbing this proved quite inadequate. The 1902 standard was 1½hp and the design of the motor underwent considerable modi□ðcation, a season's wear and tear showing that many of the

details were wanting in strength. Most makers in 1903 will adopt 1¾hp as the minimum and it is noteworthy that the Minerva standard is to be 2hp. From the □ðrstthebelthas proved that it was likely to hold the □ðeldasthebest all-round system of transmitting the motive power to the driving wheel. Its simplicity and ease of detachment and repair have been points in its favour, and numerous as have been the attempts to perfect a gear or chain drive, they have not succeeded in displacing the belt in popular favour. True we have good representatives of chain and gear driving in the Humber and Singer machines respectively, and these have excellent features of their own, but most makers are designing next season's machines with belt driving; the slipping drawback of the belt is being gradually eliminated by more attention being paid to the correct groovingof the motor pulley. Ignition mechanism will remain much the same in principle as before, but improvements in details will be numerous; chie□ðyinthedirection of making the contact adjustment simpler and more certain, and accumulators will have greater capacity than previously. Perhapsthe most striking departure will be the passing of the surface carburetter in favour of the jet or spray type by many makers; as experience has shown that it is less aīected by atmospheric conditions and is more compact and economical than the surface type. Thesurface carburetter has undoubtedly done good work in the past, but owes a good deal of its popularity to the fact that it was the only type that had been experimentedwith to any extent in the tricycle days, hence makers adapted it for the motor-bicycle. Therehas been a distinct movement in favour of reducing the number of regulating levers required where possible but this is a detail that can be over developed, and it is noteworthy that one or two makers are re-introducing the throttle valve which was abolished at the designingof the 1902 patterns. The Minerva machine will be □ðttedwithanimportant improvement whereby the sparking current is switched oī when the spark is retarded beyond a certain point, and another striking departure is the □ðttingofamechanically operated inlet valve. It has long been foreseen by many designers that the suction-opened inlet valvewas not theoretically the best, because the action of a suction opened valveis directly proportional to the piston speed, hence when hill climbing and the motor is running slowly, the charge of gas that enters the cylinder is reduced just at the time it should be at a maximum; but loth to add more working and wearing parts to the mechanism, designers have not taken to it in the past."

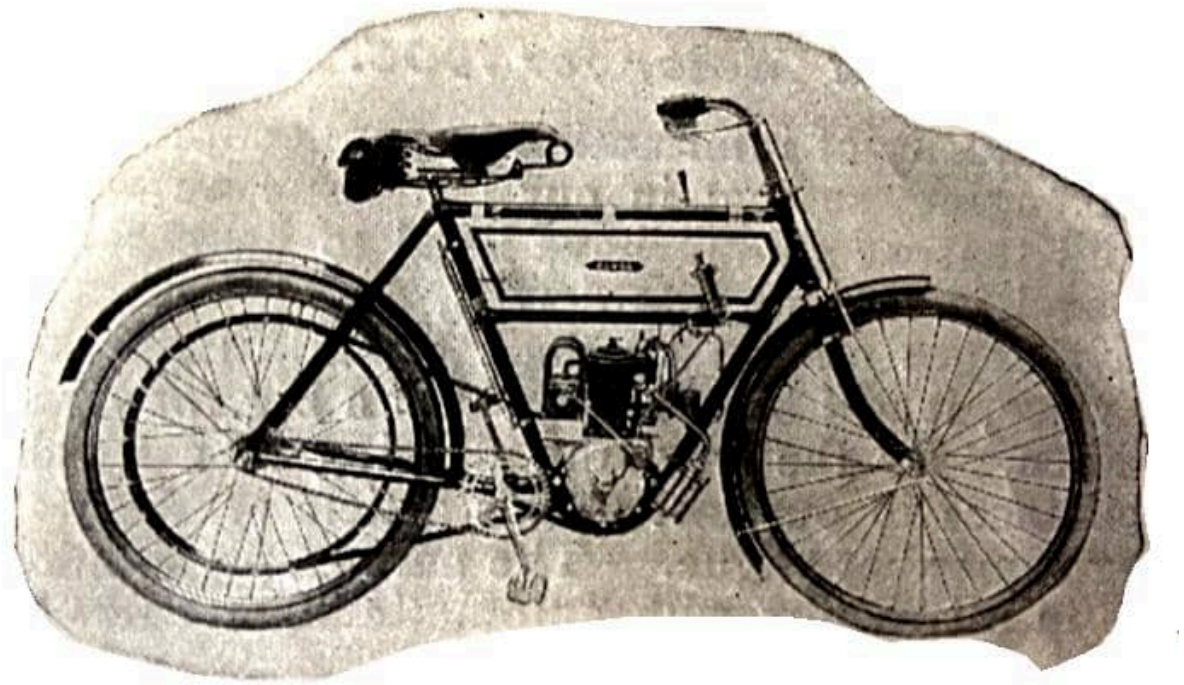


"The latest production of the Phoenix □ðrm(JvanHooydonkdriving) is shown in the centre, with

AS Ilsley as a front passenger. The 'Trimo' is convertible from an ordinary motor-bicycle into a tandem tricycle in a few minutes. On the left of the picture is Alen Todd, of Baldock (Humber), and Banyard (Ivel) on the right. EJ King is the right-hand man in the New Orleans voiturette."

"'WHEELER' (CHESTERFIELD) WANTS TO know how it is possible to regulate the speed of the motor by means of an exhaust valve lifter, as he understands this is a better way than using the throttle. By lifting the exhaust valve slightly, part of the charge is released on the compression stroke, and also part of the force of the explosion escapes; neither is the suction so strong. By having a well-□ðtted Bowden wire exhaust lift □ðtted, the speed of the motor can be regulated very nicely."

"THE CLYDE CYCLE AND Motor Co, Shenton Street, Leicester, were one of the □ðrst □ðrms in the trade to really seriously endeavour to produce a frame suitable for the requirements of a motor-bicycle. Special features of their latest model, the design of which has been registered, are long wheel base with the weight of the motor parts so well distributed as to obviate any danger of side-slip. Large bearings are used throughout. The forks are made with a specially strong crown, which is □ðtted with long graduated liners, thus reducing the breaking strain to a minimum. The standard engine is a Simms 2hp made specially for the Clyde Company and is set in a vertical position. The Simms-Bosch magneto ignition is used and the □ðrm state they have used this form of ignition for three years and have never known it to fail. The pump is placed at the side of the petrol tank and the engine may be lubricated without dismounting—a useful point."



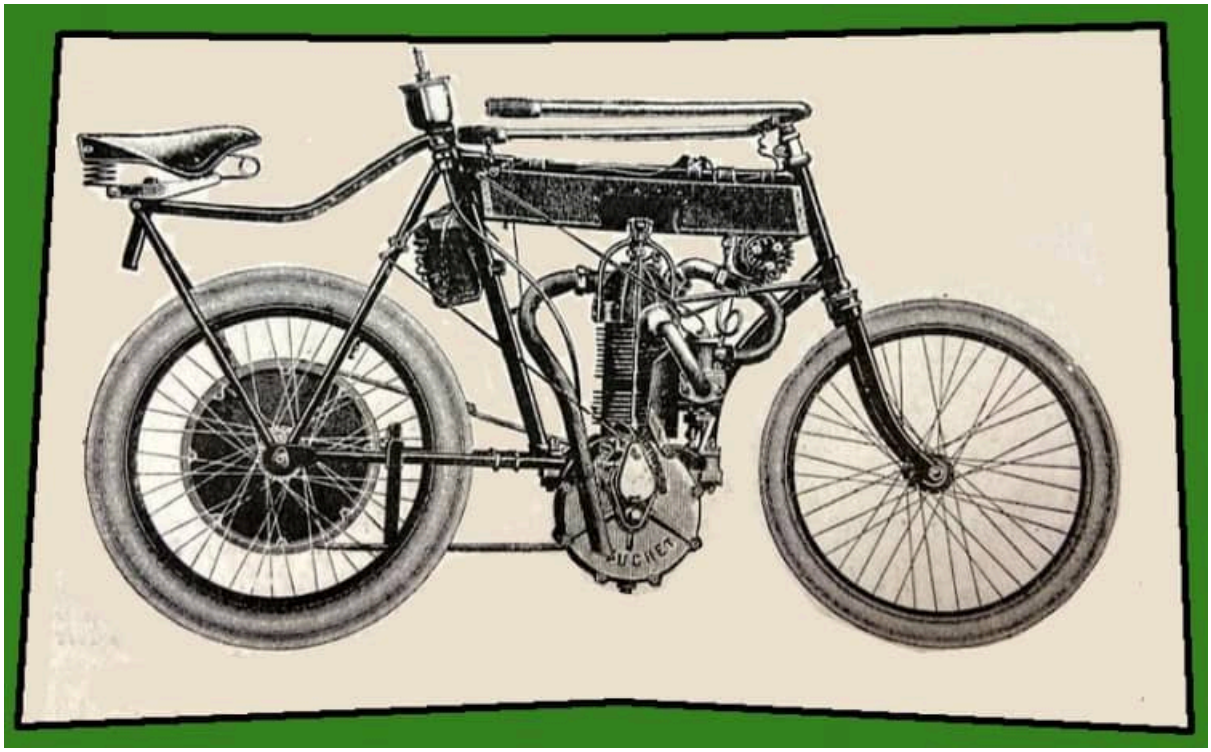
The Clyde featured magneto ignition.

"A MOTOR-CYCLE RACE seen for the □ðrst time is a most exhilarating spectacle; but when the novelty of the thing has worn oī one's interest is apt to □ðag, simply because it is always diīicult and sometimes impossible to 'keep the score'. It will readily be seen that eight or ten cycles racing together round a track less than 600 yards in length, with velocities varying from 30-45mph, must of necessity overlap very considerably, and with overlapping comes confusion and consequent lack of interest…Much of its diīiculty will no doubt be eliminated as…machines group themselves gradually into well-de□ðned classes, and as handicapping

becomes less of a toss-up than it must at present inevitably be…thenumber of starters in any race, scratch or handicap, should be limited to eight: a greater number than this seems to me to be dangerous."

"MANY CYCLISTS,WHOHAVEridden machines for years, view with surprise and disfavour a tax upon a cycle simply because it is □ðttedwithamotor. Some, in fact, are absolutely ignorant of the tax, although ignorance of the law is no excuse for an oïence against it. [This tax] is not a brand new one, but the old Establishment license V 32-33, V 14, as amended by the Customs and Inland RevenueAct, 1888, V51 and 52, c, 8, passed before motorcycles came to stay."

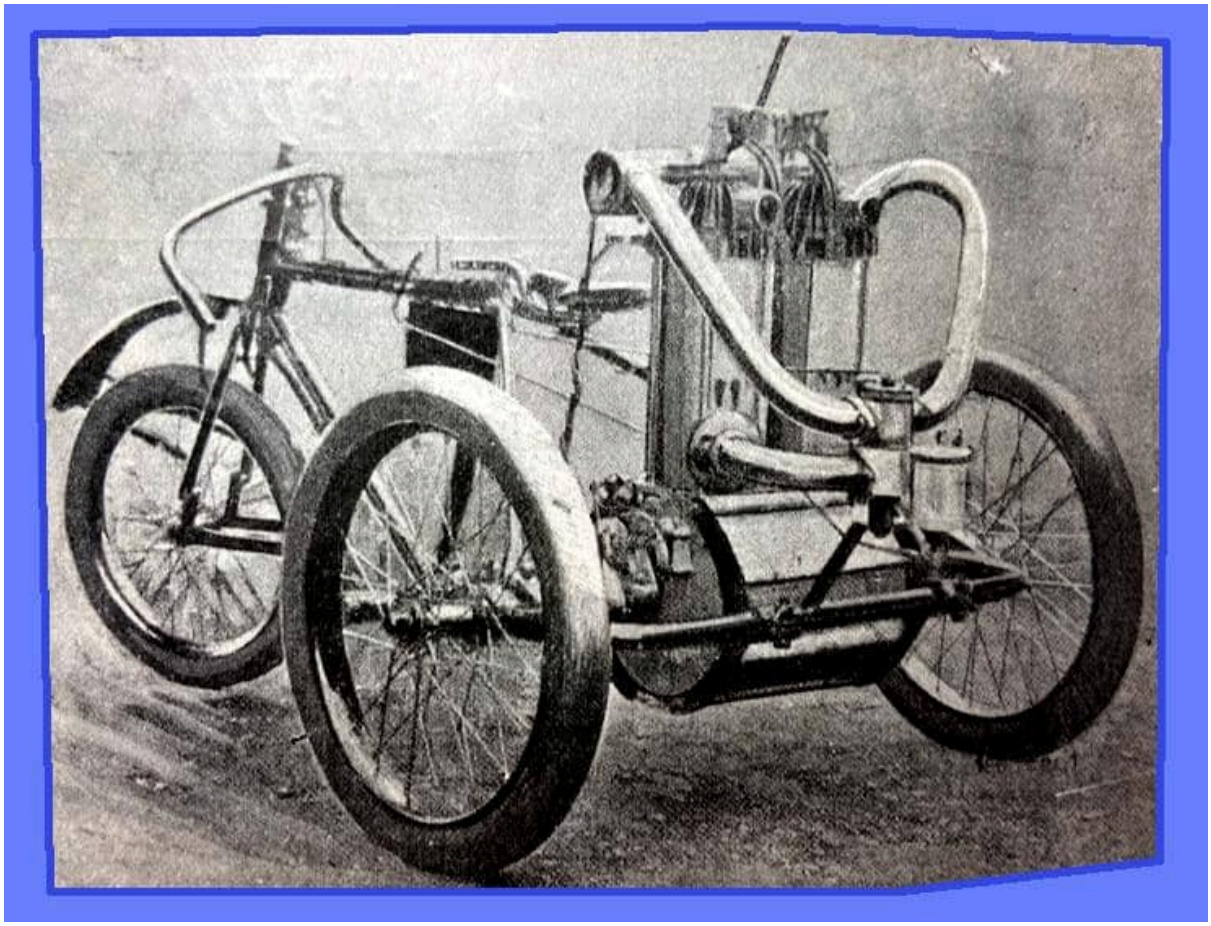
"THIS POWERFULMOTOR-BICYCLEisa type made by Messrs Sarge and Sabeck, of Berlin. Mechanically it is of very good design, the motor being placed in the centre of the frame in a vertical position. The motor (air-cooled type) is made by the well-known French □ðrmofBuchet, it develops 9hp. The ignition is on the usual De Dion lines, the coil being □ðxedforwardandthe accumulator □ðxedbetweenthebark forks and diagonal tube. The petrol tank is carried below the horizontal tube, and a spray carburetter is used. The drive is by means of a □ðatleatherbelt on to a disc pulley. No pedals are □ðttedtothis machine. The rider sits well behind the centre of the back wheel. The engine is minus a silencer. This machine has touched a speed of 55mph on the track."



"A powerful pacing motor bicycle made by Messrs Sargeand Sabeck, of Berlin. It develops 9hp."

"IT IS A FANTASTICVEHICLE,the32hp tricycle which we illustrate on this page. It a speed monster of the purest type, and as such can hardly be surpassed. The extremely interesting photo comes from the well-known Paris motor □ðrmBuchet,whoseworks produce what the French papers call the 'bête de vitesse'. Buchet endeavours at all times to astonish the world by his speed, but in this tricycle he has produced a machine which is not equalled by any other motor vehicle now known. This machine is claimed to have—andwe give the information with all reserve—a speed of 200 kilometres (124 miles) per hour. The □ðrstoïicial test of the vehicle should have been made at the recent Gaillon Hill-climbing trials, but it was found impossible to

start the monster uphill on account of the sharp incline. In spite of this it will not be long before Buchet upsets all the world records which, have been hitherto established. The most interesting feature is certainly the motor and the design for the transmission of power. What kind of a motor is it? Two cylinders without water-cooling, with smooth cylinder walls and radiating □ðangesonly on the exhaust valve. At the end of the power stroke the cylinders are opened to permit a part of the exhausted eases to escape speedily into the open. The bore of each cylinder is 130mm (5⅛in) and the stroke of 160mm (6¼in)[4,245cc]. The horse power is 32."



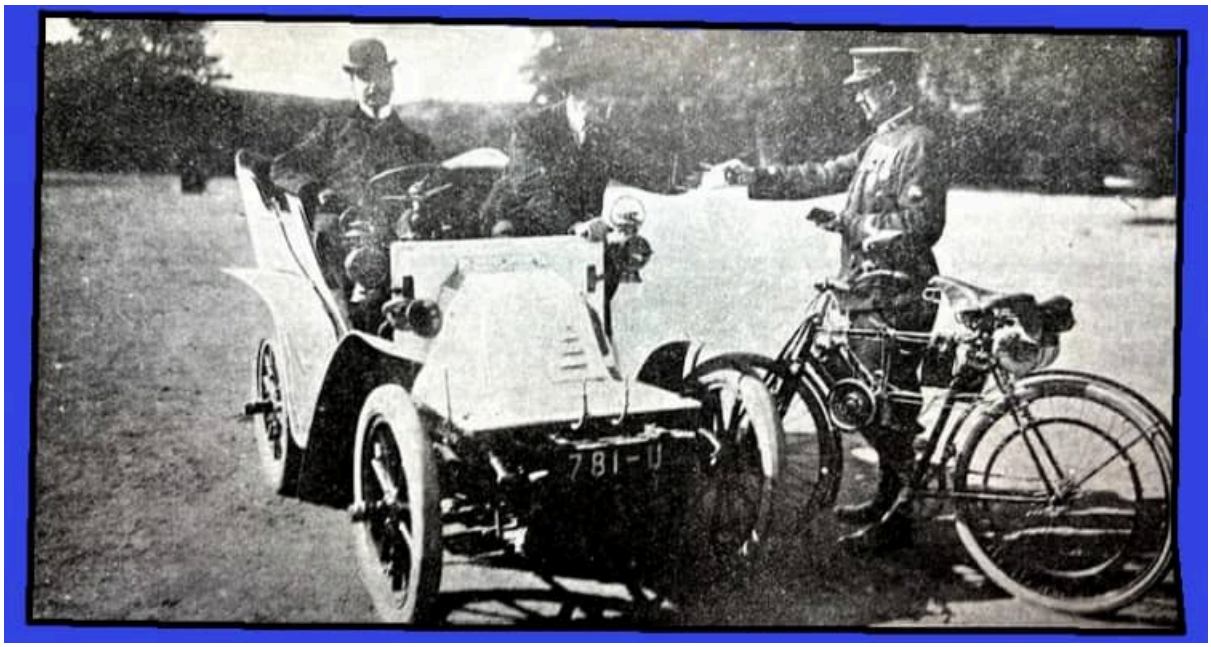
"The 32hp Buchet Racing Tricycle which is described on this page."

"THE BRITISH MEDICAL JOURNAL publishes a letter from a medical man who timely brings forward the merits of the motor-bicycle, and shows that it is a far more economical means of locomotion than a horse and trap. He also gives some good general hints on the handling of motor-bicycles."

"BURGLARS ENTERED THE HOUSE of Mr AC Davidson, 366, Camden Road, N, and stole two motor-bicycles. They should easily be identi□ðed as one (the 'Davidson') was a new pattern, specially designed for the forthcoming Stanley Show, and has a frame quite diīerent to any other on the market. It has also glass gauges let into the petrol and oil tanks and other improvements which the owner was working out. The other bicycle is an Ormonde of the well-known make, but has an additional Lucas valve attached to the oil supply pipe, and the top tube has had the enamel scratched oī and touched up by hand. In addition, a Lucas acetylene lamp was taken and one of Salsbury's latest pattern horns, which follows the shape of the handlebar."

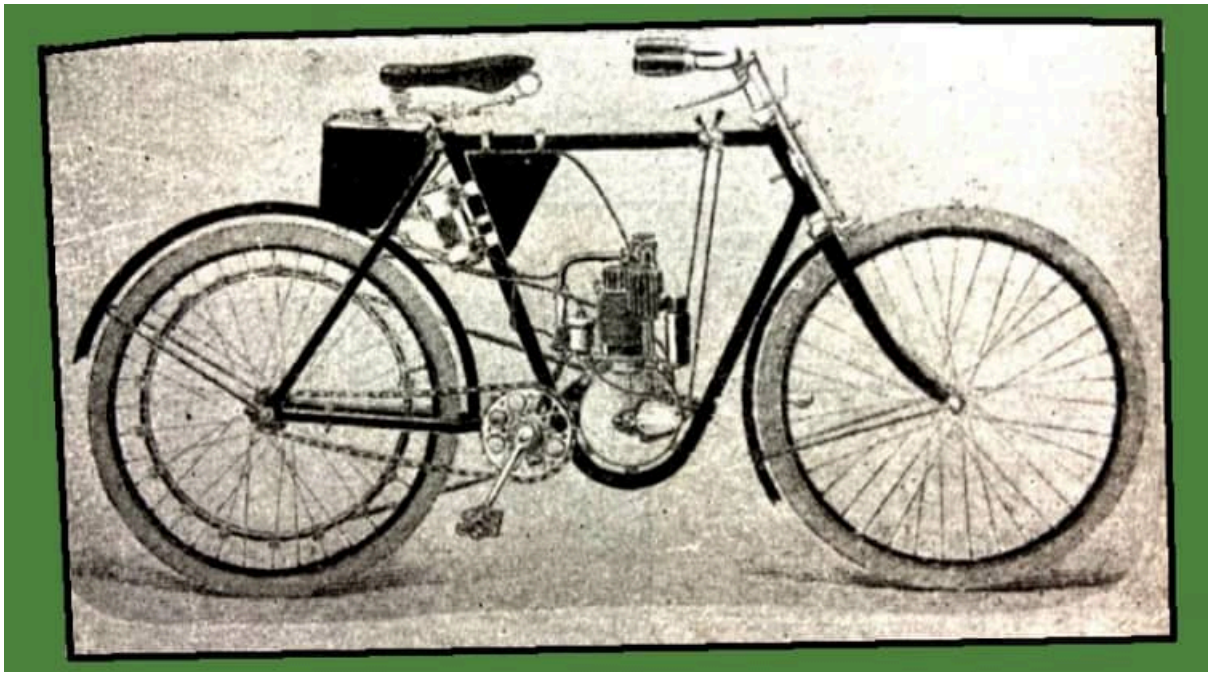
"A MOTOR CYCLING POLICEMAN is the latest Parisian sensation. He has to race motorcars transgressing the speed limit. Poor Parisians! Although surfeited with the automobile scorcher,

the Parisianshavenow got to put up with road races, with the police breakingthe law to catch law breakers!"



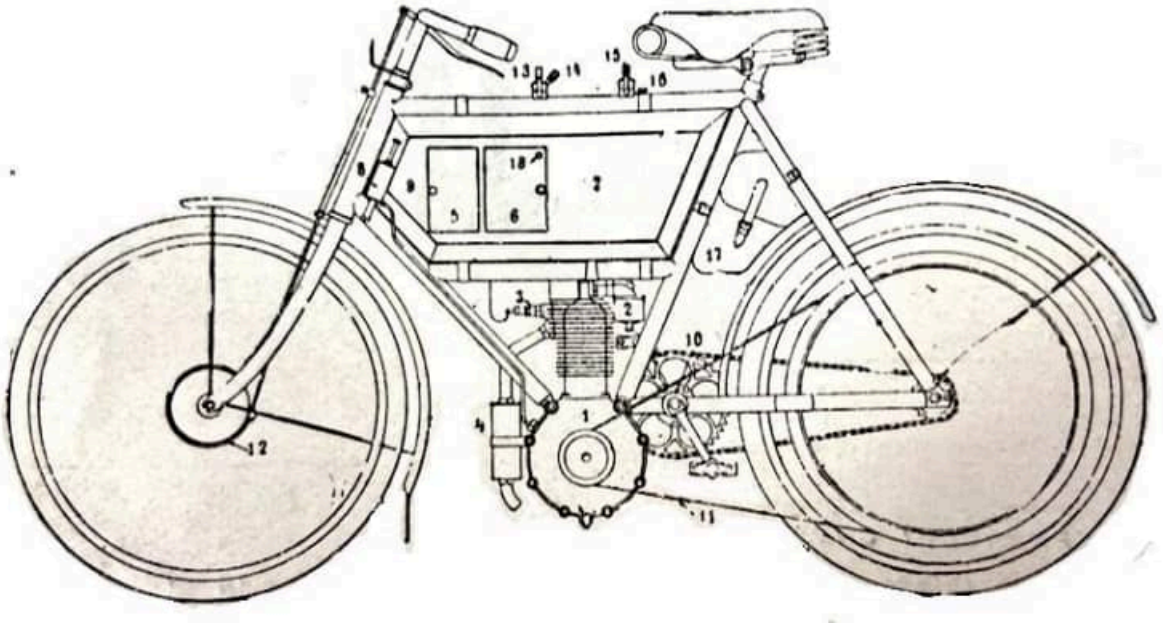
"The Motor Cycling Policeman at work in France.—Takingthe name and address of an erring automobilist."

"THE'CORONA' MOTORCYCLEisbuilt by a German □ðrm,andhas become prominent as a pacing machine, the well-known record holder, Robl, using these motorcycles for long-distance pacing. Theconstruction is simple and the appearance symmetrical. Special consideration has been given to the cycle frame, which has one bent tube from the front fork crown to the bottom bracket and up to the saddle. Themotor is supported level with the bottom bracket and exactly between the two wheels to ensure freedom from vibration and side-slip. Thepower is transmitted to the rear wheel by means of a twisted hide belt, and should the purchaser be in favour of □ðatbeltsasubstitution can easily be arranged. The1¾hp motor is suīiciently powerful for generaltouring purposes, and all hills have hitherto been taken without any trouble. An automatic feeding spray carburetter is employed and the sparking ignition is regulated by turning the left side handle of the handlebar. Thepetrol tank holds about one gallon, suīicient for an averagejourney of 100 miles. The total weight of the machine is 94lb."



"The 'Corona' motor-bicycle."

"AMONGSTTHEMOTORCYCLESATtheHamburg Automobile Exhibition, the Adler attracted much attention. Of German motorcycles it is said to be the best, and a great advance on former constructions hitherto produced by that country. It is not a motor built into an ordinary cycle frame, but a motor-cycle in which the cycle has been designed to suit the motor. Petrol tank (6) and ignition coil (5) are together; the lubrication oil tank (9) are placed together in one case, of the smallest possible dimensions, to give the machine an elegant and light appearance. The carburetter (2) and the exhaust muīler (4) are placed so as to be easy of access in case of trouble. Theoil pump (8) rests behind the steering tube on the left side of the tank, so that the rider can employ it when going at the highest speed. The Adler motor is of original design, constructed at the Adler Cycle Works, at Frankfort-on-Main, has two nominal horse-power, which can be slightly increased when needed. In nearly all cases the power Is suīicient for hilly roads, and a speed up to 30mph is claimed. Thespray carburetter has a throttle valve regulating the fuel consumption according to the requirements of road and speed. Theaccumulator (6) is of suīicient dimensions to run 1,2000-1,800miles. The26in wheels have 2in pneumatic tyres, and the rims are exceptionally strong. Themotorcycle has a front wheel band brake regulated by hand and a rear wheel band brake, which only acts when the cranks are in certain □ðxed positions, to avoid the brake being applied by accident."

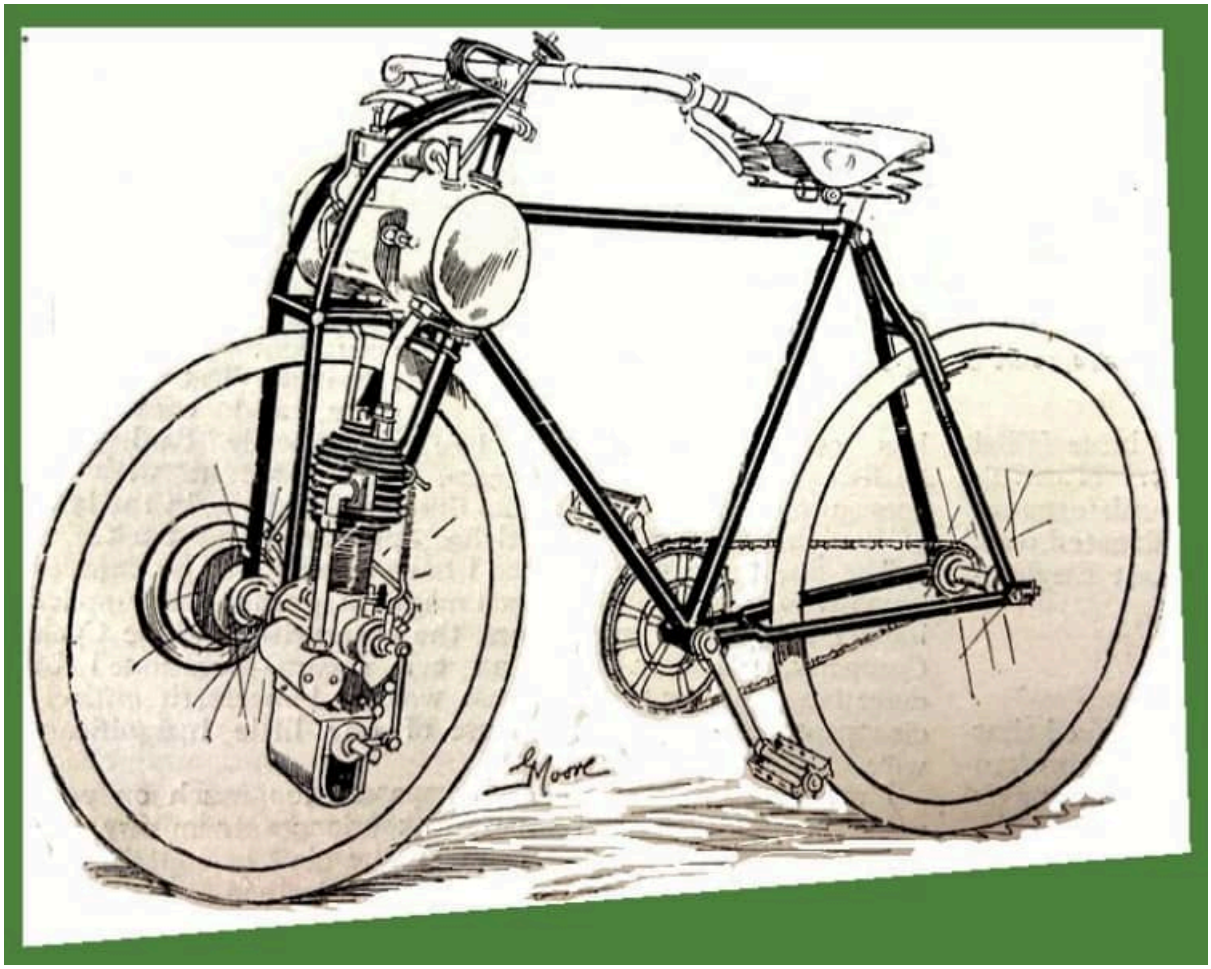


“The Adler motor-bicycle.”

“THE FIRSTMOTORCYCLERACEinSpaincannot be called a great success. Of the seven entries only two appeared at the start, and of these one had to giveup en route, owing to a break-down, leaving the victor to □ðnishthedistanceof 200 kilometres on the execrable Spanish roads, in 8hr 7min—the □ðrstSpanishmotorcycle record.”

“A WELL-KNOWNLONDONENGINEERhasdrawn up a scheme for the construction of an automobile highway through the centre of Englandfrom London to Carlisle, and then on to Glasgow, Edinburgh and Inverness. He proposed that the road should have a concrete foundation and a surface of specially hard creosoted wood blocks, with asphalted joints, the surface curvature being suīicient for thorough drainage. Thecentral part would be exclusively used for motorcars, and the sides for motor cyclists and cyclists.”

“THE MACHINEILLUSTRATEDisthespeciality in motor-bicycles brought out by Motor Wheels, Euston Road, London. It departs entirely from conventional practice in design, the whole of the motor gear being carried by the front forks. Tho motor is a Simms, □ðttedwithmagneto ignition, and the drive is by a Crypto gear to the front wheel axle. Thepetrol tank, carburetter, coil and accumulator are supported on a bracket attachment carried by the forks. A stout □ðatspring □ðxedbetweenthehandle bar and stem reduces the vibration considerably. Whether or not a machine of this type would be liable to side-slip badly is a doubtful point.”



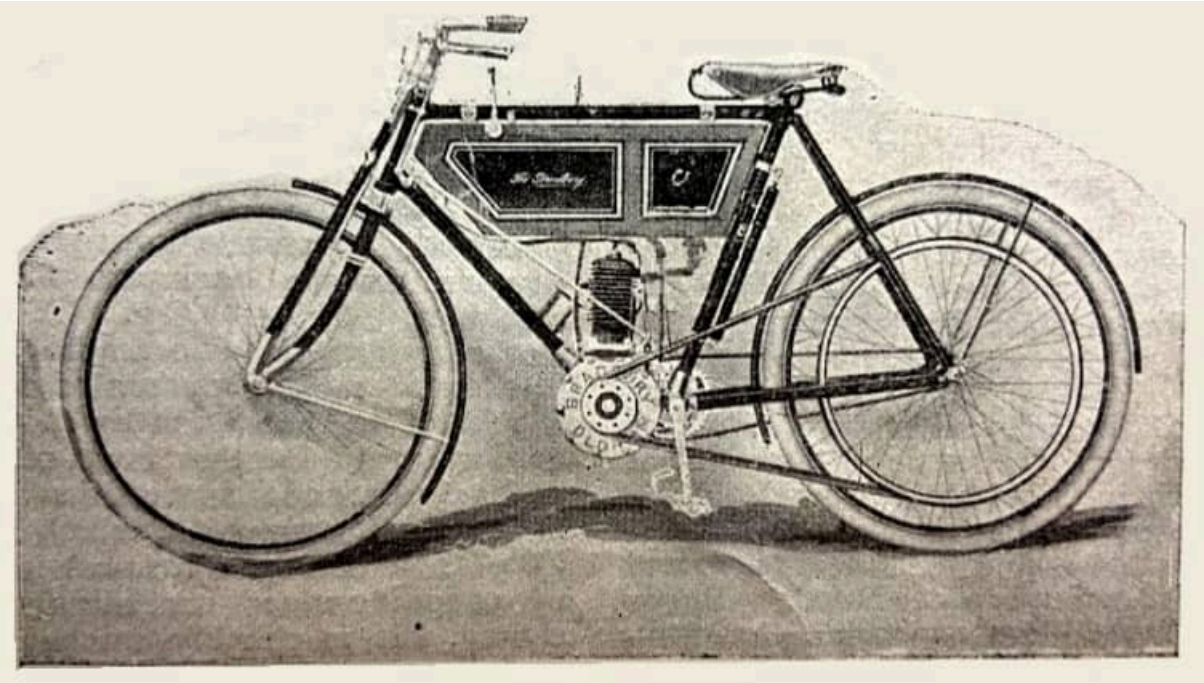
"Motor Wheels design of motor-bicycle."

"THE ASPECT OF THE two great cycle shows is changing. Whilst it would be quite inaccurate to even suggest that the bicycle is becoming supplanted by the motor-bicycle, it is an undoubted fact that, at both the Stanley and National Shows, the motor-bicycle is predominant. On almost every stand at least one motor-bicycle is shown: and some of the exhibits consist of nothing but motorcycles and their appurtenances. One only needs to carry one's thoughts back to the Show of about three years ago and to recall that single Minerva motor-bicycle shown, in a very half-hearted way, on the corner of a somewhat obscure stand. Its black carburetter case and glaring red lettering gave the machine a shoddy appearance, and many were fain to remark upon the undesirability of trusting their precious lives upon such a toy. But a couple of quick turns of the chronological kaleidoscope have entirely changed the view, and we can now realise to an extent (it may be to only a small extent) what a vast future there is before the motor-bicycle."

THE MOTOR EXHIBITS AT THE STANLEY SHOW.

"THE 26TH STANLEY SHOW is now open to the public …One of the most noteworthy points of interest is the prevalence of the motor-bicycle…the advances that have been made in construction and in details since last year show how rapidly things are moving towards the development of this handy form of motor vehicle. **Peugeot Frères**. The diagonal form of motor is

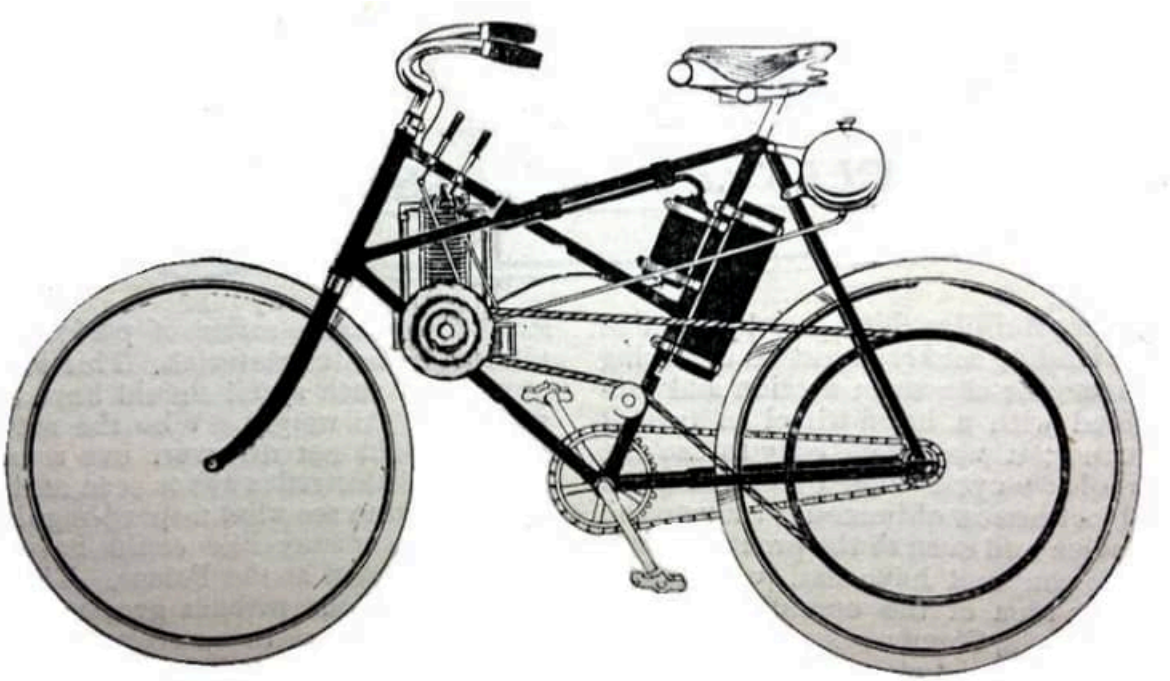
adopted by this □ðrmfortheirmotorcycles, and is of 2hp, but with a very low weight of 77lb only. It presents much the usual appearance, but diīering in many respects in a large number of minor points, where the comfort of the rider has been studied. **Ariel Motor Co**, Bournbrook, Birmingham. The New Ariel motor-bicycle has a 2hp engine, vertically bolted into the frame between the bottom bracket and front wheel. The steering head of the bicycle is strengthened by the addition of an outside tube from the front fork crown to the clip at top of head. The Ariel engine has the sparking plug screwed directly into the centre of the combustion chamber. A large tank is □ðttedintheframe, which holds two gallons of petrol, the bottom of the tank composing the well-known Ariel carburetter, holding a quart of spirit. **Bradbury and Co**, Oldham, have in their new motor-bicycle struck out on somewhat new lines. The engine is placed vertically, and the case of the engine is a malleable casting in which the whole of the lugs and the crank bracket shell are included. Consequently the crank case of the engine can, without any fear of fracture, be used as part and parcel of the frame. The pulley side of the crank case is an aluminium plate. The cylinder dimensions are 66x76mm (260cc). The cylinder is cast in one piece with the head, and the silencer is placed close to the exhaust outlet. A surface carburetter is provided, but a spray is optional. The connections for the wiring are exceedingly simple and eīective, as they are eīected by spring snaps. The girder front forks are particularly good. On a 2½hp machine shown there is provided an extra rear seat readily attached and detached, and carrying an extra tank, with compartments for both oil and petrol. The rear passenger places his feet on a pair of pedals provided for the purpose. A well-designed trailer is exhibited, and



"The new Bradbury Motor-Bicycle."

a motor-bicycle driven by a Clement engine with a chain drive is also shown. **Lycett's**, Birmingham. This □ðrmisshowinga good collection of tool bags and saddles. The Ark Motor bag shown, which, as its name implies, is somewhat in the form of a Noah's Ark, is provided with two sets of straps, so that it may be □ðttedtothe back of the saddle or upon a carrier. It is □ðtted externally with a small pocket at each end, and internally with loops and pockets for tools, repair out□ðt, etc. It also has a strap to carry a cape on top. Another bag shown is divided into two parts, one being for an accumulator, and the other for tools. This latter is made to be carried by

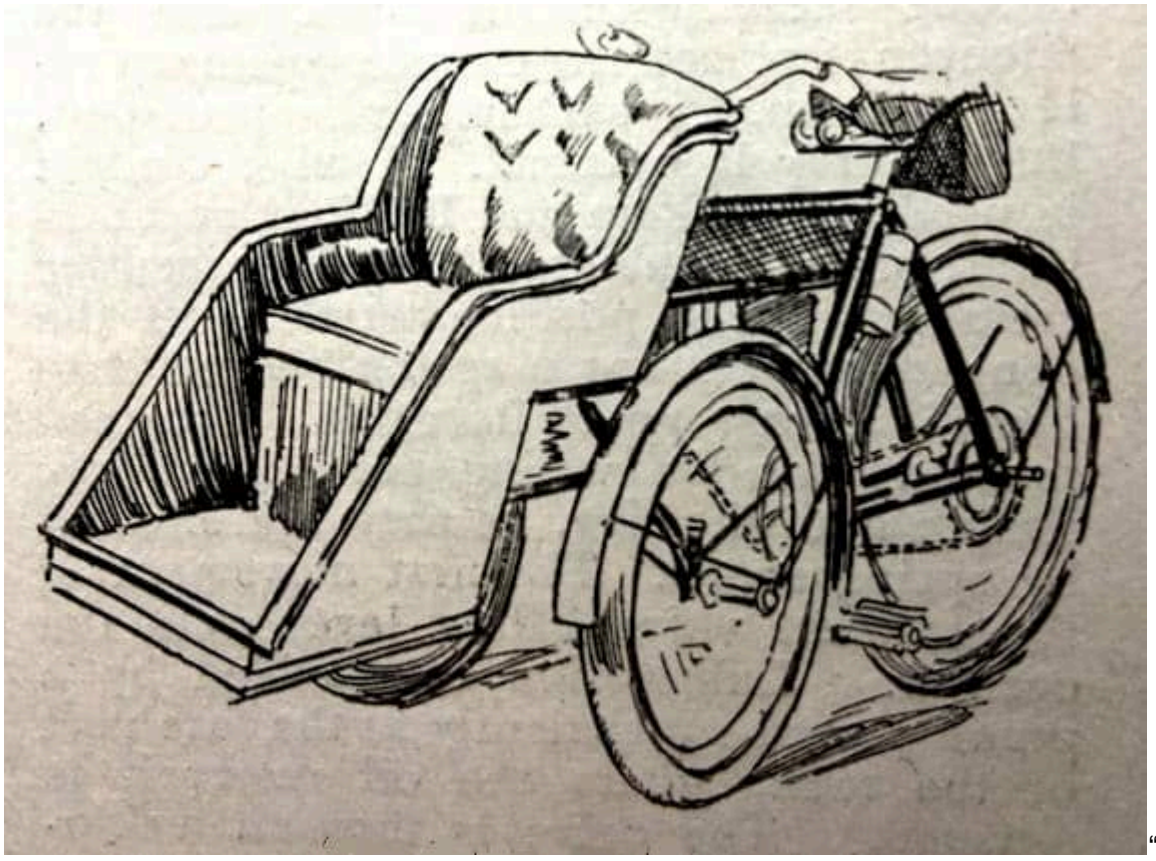
the top tube of a machine. **En□ðeldCycleCo**,Redditch,show two quads, one tricycle, and three distinct patterns of motor-bicycles. One of these has the Minerva engine and □ðttings,with mechanically-operated inlet valve, the speciality being the En□ðeldfrontforks.No 2 has a 2hp air-cooled enginebolted vertically in the frame, in such a forward position that the pedal cranks miss the belt and contact breaker, so that bearing width in the engine has not been sacri□ðced. Thethird machine has a 2¼hpwater-cooled engine, bolted vertically in the frame…Thetiming shaft issues from the crank case and carries a driving chain wheel containing a spring clutch, from which the drive is conveyedto the back hub by a special chain. Thefront compartment of the tank contains the cooling water, one and a half gallons being carried; 18ft of ⅜in aluminium piping, formed into a radiator, is coiled in the space between the tank and down tube. The weight complete, with petrol and water, is 140lb, speed 30mph. This,however,can be easily altered by changing the rear sprocket wheel. **South British TradingCo**, London, EC. This □ðrmis showing two new pattern powerful 20th Century lamps for motorcycles. Theyare



"The Chambers EngineeringCo's light motor-bicycle, shown at the Stanley Show." It featured a rubber-block cush-drive of the type still in use today.

both □ðttedwithlarge parabolic re□ðectors,madeof aluminium rolled on brass, and are very powerful light-givers. One of these lamps is for oil and the other for acetylene. This □ðrmisalso showing some useful wrenches, having curved handles, specially suitable for motorcycles. **Carlton Motor Co**, Cricklewood, NW, have a full line of □ðnishedmotorsof2hp, 2½hp and 3hp. Complete sets of castings are supplied, and these are of excellent □ðnishand design. Thewell-known Carlton carburetter has undergone considerable improvement, with the addition of a positive measured petrol feed, and this ensures very economical working. The makers will readily adapt them to any make of machine. The □ðrmundertakeallkinds of repairs to motors, and guarantee their work in all respects. **Osmonds**,Birmingham, show three specimens of Osmond motor-bicycles. In these the engine is clamped to the tube from head to bracket, the outside □ðy-wheelbalancestheweight of the engine, so that the total weight is central; drive is by twisted raw hide belt, running over a jockey pulley on the main tube. The claim of Osmonds is, not that they have produced a racing motorcycle, but that their machine is still a bicycle, with the addition of an engine capable of propelling the machine and rider at the

rate of 30mph; the weight of the complete machine is only 72lb. Another pattern is shown having a chain drive and a two-speed gear, the engine being in the same position as on the previous machine, driving by chain to an additional bracket, placed a few inches in advance of the usual bottom bracket; this extra bracket carries the two-speed gear, which is on the sun and planet system, giving a reduction from high to low of 25%. This enables the machine to mount any hill. **The Birmingham Pneumatic Tyre Syndicate**, Birmingham. The Woodstock motor tyre has bands of steel in sections in the edge of the tyre, and when in position these stand vertically in the rim. They are held in position and prevented from slipping in the bed by means of bolts, which engage with them through holes pierced in the rim. **Chambers Engineering Co**, Birmingham, show three Royal Mail motor-bicycles. Number 1 has a Clement-Garrard engine driving through chains, a cross framed cycle being used. The second pattern has a 2¾hp engine in the vertical position, also driving through a chain. The third pattern has a 3½hp engine in a vertical position, and with outside □ðywheel, spray carburetter, large petrol case, and battery tank belt drive, whilst the control is by two levers on the handlebar. This machine is a □ðnepiece of work…Chambers Engineering oīer a very simple spring transmission device for their chain drivers. This was simply a large-diameter hollow chain-wheel boss, having a series of segmental compartments, each containing a rubber block. These were compressed by the pull of the chain and pressed up against two arms carried by the wheel hub, and thus transmitted the power to them. The movement of the chain-wheel around the hub was about ¾in either way, and there was no lateral movement whatever. **Humber**, Beeston and Coventry. Seven motor-bicycles are shown, all of the Standard Humber chain-driven type. A resuscitated Olympia tandem is on view, with 3hp engine, chain-driven, spring seat-pillar, and a luxuriously upholstered wicker seat between the front wheels, in which a passenger (lady

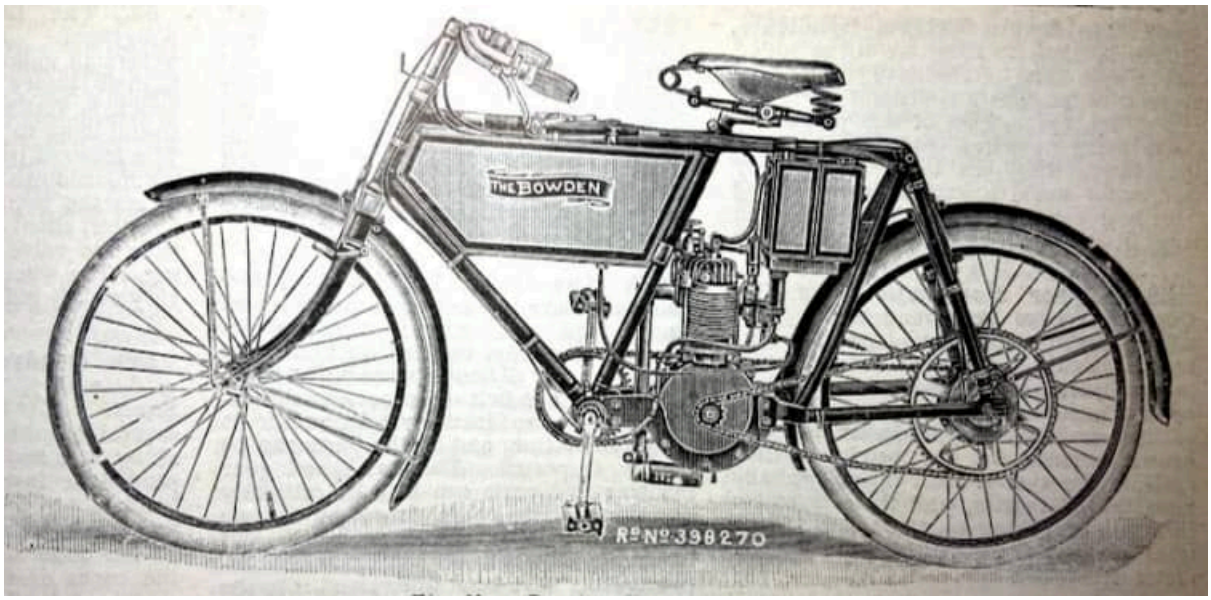


"The Humber Tandem."

preferred) can be carried. We might just remind novices that the engine is hung on four pillars which replace the usual tube from head to bracket: the drive is taken by chain No 1 from the engine cog wheel to a large chain wheel on the bottom bracket spindle; inside this chain wheel is a smaller one, also □ðttedonthespindle, but running on a free-wheel clutch; from this chain wheel chain No 2 runs to the back wheel hub. On the other side of the machine is chain No 3, which is used solely for starting purposes; chains Nos 3 and 2 are interchangeable as to length, so that any undue stretch in chain No 2 is counteracted by swopping chains. Free engine is obtained, so that the engine can be idle when the machine is running downhill, and so get an additional chance of cooling. Ample brake and mudguard accommodation is provided on all Humber motorcycles. **Clarke, Cluley and Co**, Coventry, show the Globe motor-bicycle, with a trailer attached. The engine of 2¼hp is placed vertically in a loop frame: it has a spray carburetter, large tank, and battery and coil case and two brakes. **Ross, Courtney and Co**, Upper Holloway, N. Like all enterprising cycle accessory people, this company are now catering for the wants of the motoring public, and have a display which includes lubricators, horns, lamps, valves, etc. Special productions of theirs are tyre in□ðators, and among the several specially adapted for motor work we noticed a foot pump □ðttedwithpressuregaugeregistering up to 100psi. **Stanley Feast and Co**, London. The main feature to which attention is drawn at this stand is the 'SF' repair band for motor tyres. It consists of a thin pliable band, from 3½-4½in wide, and is intended for the quick repair of bursts, cuts, gashes, or weak places in outer covers. One end of the band is placed under the wired or beaded edge of the tyre, the other end slipping under the opposite edge. Tyre repair out□ðts, solution, and tyre cements are other specialities of this company, who are also introducing an enlarged model of their 'SF' tyre remover and spanner. **Ormonde Motor Co**, London, W have a □ðneshowofmotors of 2¼ and 2¾hp, all of which are □ðttedwiththeKelecom engines, in a vertical position, fastened in the rear section of the frame. The engine rests upon the stays, and is clamped to the seat pillar. Specially strengthened head and

The Ormonde's Kelecom engine was clamped to the seat pillar.

font forks are □ðtted.Thesilenceris carried underneath the bottom bracket. The tank capacity is 7 quarts, capable of driving the machine 170 miles. A special indicator □ðttedontheoutside the tank is moved by a □ðoatinthepetrol and shows the exact quantity in the tank. Thecontact breaker and valve lifter are combined, working with a twisting handle. Thecontrol is eīected by two levers, for advancing sparking, and one for the throttle. Automatic lubrication is □ðtted,anda light gaugefor the oil is □ðttedontheback tank. A lady-back motor tandem is also to be seen, □ðttedwitha 2¾ Kelecom engine. TheOrmonde fore carriage is exceedingly well designed. It is quickly attached and detached, and on removing the front wheel of the cycle and □ðxingupthree clamps, a cycle is converted into a three-wheeled two-seated car. **Maurice Knapp**, Dunstable, Beds, shows the M&P motor stand and luggagecarrier, serving the dual purpose of a stand and home trainer, and also when turned up as a luggagecarrier. When not in use it can be folded up. It also aīords the facility of removal of the wheel, a thing to be desired, wheneverthe puncture □ðendshouldbeabout. We consider a stand of this nature an absolute essential. **Bransom, Kent and Co**, London. A motor-bicycle of parts made by this □ðrmisonview □ðttedwitha Minerva engine. A number of engines of various makes are on view, amongst which is a genuine De Dion motorcycle engine, which has only recently been put on the market. A very neat oblong metal case to carry a spare accumulator is shown, □ðttedwithclipsto attach it to the frame of the machine. Severalforms of new lubricators are on view, also spare petrol tanks, carburetters, and a small oval-topped funnel which can be readily carried in the tool-bag. **EM Bowden's Patent Syndicate**, Brook Street EC, show a frame with a special cradle to take any



"The New Bowden Motor Bicycle."

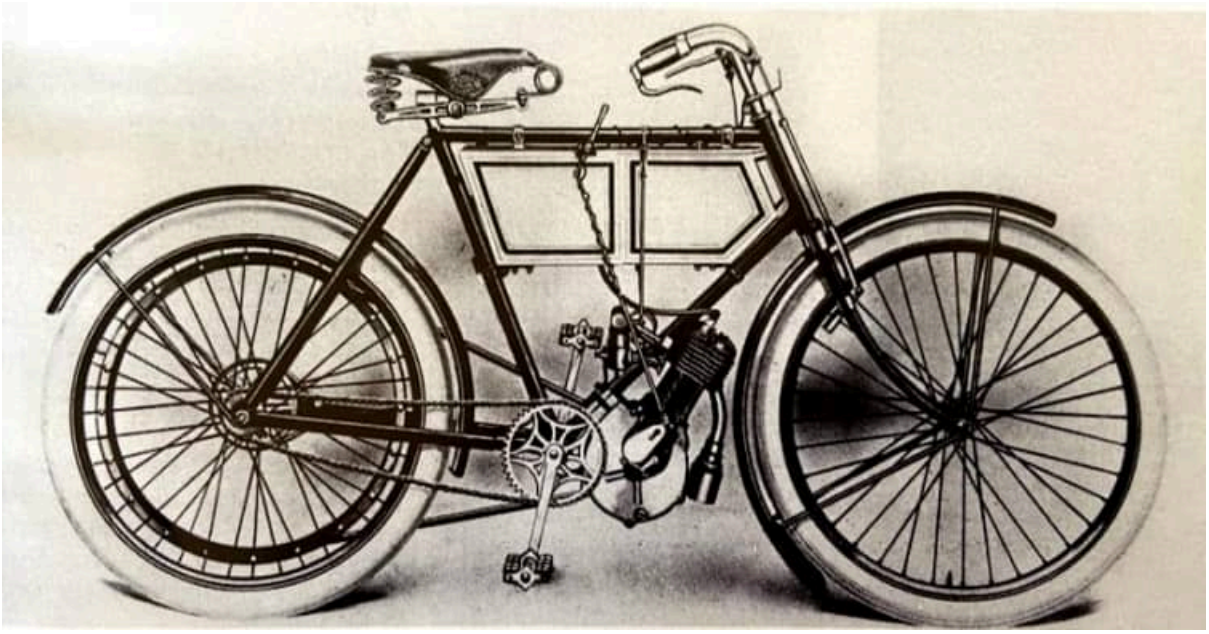
design of engine. Thepedals and chain wheel are placed ahead of the engine, thus making a lengthy wheel-base. Themachine is driven by chain and Bowden clutch, with the ordinary form of conical faces, but thrown in and out of gear by the Bowden wire, which permits a free engine at will. Theclaim that this □ðrmhasadesignof machine adaptable to every form of engine operated entirely from the handlebars by the well-known Bowden system is clearly evidenced, as they show the frame □ðttedwithvarious well-known makes of motors. A handy system of lubrication, which enables the rider to accurately measure the quantity of oil delivered to the crank chamber, is smart. It consists of a glass cylinder with a central rod or spindle havinga valve at each end, and when screwed down the oil enters the chamber from the tank. **The Clissold Cycle Co**, London. Double stand for use when cycle is standing or at rest. The

handlebar being □ðttedwitharoller and cord permits of the drawing up of a pair of small wheels attached, to a bracket, to be used in traīic and slow riding when it is required, either to stand still or proceed so slowly to render the balance diīicult. **D Citroen**, Holborn Viaduct, EC. Minerva motors are this year displayed on a well-designed and somewhat ornate stand, and an excellent, eīective show results. Themotors shown are the new 2hp. Minerva, the 2½hp Minerva and the 1¾hp Romania. Thenew 2hp engine is full of improvements. Thenotable alteration is in the mechanical operation of the inlet valve,which, although opinions may diīer, is unquestionably an eīective, reliable and eīicient method for the induction of the gas. **Jvan Hooydonk**,Holloway, London N. One the earliest makers in the cycle trade to recognise the claims of the motor, J.Van Hooydonk has reaped the reward of his enterprise, and has had the enjoyment of selling Phoenix motor-cycles in large quantities, and wherever the Phoenix has gone it has given pleasure and satisfaction to its owner. Mr. Hooydonk is in every sense a practical motor engineer,and his machines, therefore, bear the stamp of his genius, which has been directed to the simpli□ðcationofthe machine, of the work of driving, and of repair or adjustment when need might arise. The2½hp machine has a l.onguemare carburetter, with levers to adjust both air and gas, and the admission of hot exhaust gas for warming the carburetter can be regulated as necessary. Thesilencer is particularly good. [Also on display is] the Smith Two-roller Spring Seat-pillar, which has been invented to help overcome the vibration trouble. Another exhibit is the new patent Anti-vibrating Handlebar, in which the springs, being very soft, respond to the merest unevenness of the road. **TheSwain Patents Syndicate**, Horwich, Lancs. Here are to be found the Swain and Horwich Tyres.Thespecial advantages claimed for these are durability, speed, ease of manipulation—there being no wires—and freedom from punctures. Theyare built up expresslyfor motor work. **Clipper Pneumatic Tyre Co**, Coventry. Here are found motor tyres of all descriptions, their speciality for motor-cyclists being the Re□ðexmotor-bicycletyre,which is made in 26 and 28 by 2in sizes. **Continental Caoutchoue and Gutta Percha Co**, Holborn Viaduct. A good show of motor tyres will be found here. Thecompany are making a speciality this season of repairs to all kinds and makes of motor tyres. **Palmer Tyre**, Birmingham. Thewell-known Palmer Fabric is used, every thread being separated and cushioned in vulcanised rubber, which renders them very resilient. The tread is very thick and almost puncture-proof, ordinary tacks failing to □ðndtheirwayto the inner tube. The Palmer is moulded to a special shape, so that when in□ðated,therubber is under compression, and the tyre takes a form entirely diīerent to that of other tyres. This perhaps accounts for the absence of side-slip, which is practically unknown with this new tyre. **Cheswrightand Co**, London, show the Lamaudiere motor-bicycle, constructed by the French company of that name, of Paris. Theengine forms in itself part of the frame, viz, the diagonal, has an outside □ðy-wheelandisof 2¼hp, driving with a raw hide twisted belt, the underside passing over a jockey pulley, which can be adjusted from the top bar by a lever with a ratchet stop action. Thespray carburetter is of novel form, the spirit being delivered on gauze wire; there is an adjustable drum above the gauzewire which regulates the air supply, and is operated by a lever on the top bar. Thecarburetter is enclosed within a chamber, which is heated by the exhaust gases. Alcohol or other spirits can be used with this carburetter. **Steiner and Co**, London, EC. A very large range of horns is here shown, with one of which is combined an oil lamp, placed in the mouth end; another shows an acetylene lamp combined in the same manner. ThePowerful and Motocyclite acetylene lamps, both of which burn six hours, and the Belmont, which has made a reputation, are three good lights. **The Garrard Mfg Co**, Birmingham, have □ðvecompletemachineson show, and the actual four-cylinder machine that went up Gaillon Hill at 62mph. Thereare two of the chain drivers and one belt drive pattern shown. The well-known featherweight motor is shown in section, and all the parts can be readily inspected.

The two-speed gear machine and parts can also be critically examined. The chain driver, with two speeds, has been exhaustively tested, and is a really, □ðnepieceofwork. **The London Machinists Co**, Kingsland. This □ðrmshowtheRoyal Sovereign motor-bicycle, built throughout in their factory at Kingsland. The engine, which is vertical, is contained in a horizontal loop, to which it is securely bolted. The forward part of the loop is brazed to the main down tube, whilst the back part forms the bottom bracket. Surface carburetter, silent exhaust, and one lever controls the valve lifter and advance sparking. The wheel base is extra long, and a very steady machine is thus secured. **Goodyear Tyre and Rubber Co**, Tabernacle Street, EC. This □ðrmare making their special motor-bicycle tyres in sizes 26×2, 28×1¾, and 28×2. The system employed in fastening is their well-known form of braided wire, ie, a □ðatbandof□ðnebraidedwire, which lies in either edge of the outer cover. The act of in□ðatingthecoverdecreases the circumference of the band by increasing its width. This causes the tyre to contract on the rim. **The Crypto Works Co** have □ðvemotor-bicycleson show. These include three Crypto 2¼hp and one 2¾hp machines, and a featherweight, □ðttedwiththe Clement-Garrard motor. An ingenious switch and combined exhaust valve lifter is good. A special Longuemarecarburetter is used, and the Lincona belt □ðtted. Thepetroltank is of neat design and large capacity. The control levers are within easy reach of the rider's hands on the horizontal tube. **Alfred Dunhill**, London, NW. The name of Dunhill has become a house-hold word in the motor-cycling world, as the moment one takes up motor-cycling it must not be forgotten that the extra speed attained necessitates extra clothing, and Mr Dunhill is the man who has set himself out to supply the requirements in the most thorough manner. We have not space to refer to his many productions in the way of caps, goggles, leggings, etc, and must select one or two for special mention. We □ðrstinspectedthe MC Semi-Breeches in cloth-lined twill material, and also in leather. Thesebreeches are in the form of overalls, and whilst having the appearance of knickers, can be much more readily put on and taken oī. One of the most useful of Mr Dunhill's articles for the use of motor-cyclists is his Umbrella Cape. There are no buttons on this whatever. You just stick your head through a hole, and there you are! It consists of a long loose cape of waterproof material, the neck consisting solely of rubber. The cape folds up into a very small space and should □ðndaplacein all motor-cyclists' out□ðts, asitproves invaluable when the elements suddenly turn unkind, and the rain begins to fall. **East London Rubber Co**, London, show a bicycle □ðttedwiththe Kerry engine in a loop which allows the engine to be placed low, and at the same time suīiciently forward to get

a good length of belt drive. An automatic carburetter is □ðtted. The main feature aimed at has been to produce a neat machine coupled with cheapness, 38 guineas retail. At the same time, nothing has been sacri□ðced as to strength and simplicity. **The Bowden Brake Co**, London, provide excellently for the braking of motorcycles, the famous Bowden wire being made of extra strength. The new Bowden front rim brake is made in two forms, one actuated by a lever, and the other by the Bowden wire. In the latter a very neatly-concealed spring is used, and the brake should become popular in either form. Both are very easily attached. **Imperial Cycle and Motor Co**, Birmingham. The motor-bicycle on show at this stand has a neat appearance, the case, containing the accumulator, trembler coil, petrol, lubricating tanks, and carburetter being of polished mahogany, a contrast to the metal cases we are so accustomed to see. The machine is □ðtted with a 2hp engine in the inclined position. One lever operates the compression, mixture and sparking. The tank will hold suīicient petrol for a 100 miles ride. An automatic lubricator is □ðtted, and a very eīicient silencer is carried underneath the bottom bracket. Price £42. **Salsbury and Son**, London, WC. This □ðrm entered early into the supply of motor accessories, and a very large range of such articles is shown here. The new rear light lamp, of insigni□ðcant weight, with red light, is a useful introduction. Leather coats and breeches, lighter than the usual sort, are introduced. A very powerful but neat horn is shown, the trumpet portion being bent to the form of the handlebar. The Invincible oil lamp for motor-bicycles is excellently designed for its purpose, and has an oil well of extra size. The EIC sparking-plug is sold by this □ðrm. The **Reliance Engineering Co**, Southampton. 'Death to Vibration' is the motto this company has adopted, and so far as motorcycles are concerned they claim to have overcome this by means of their 'NAB' anti-vibrating seat pillars and handlebars. The seat pillar consists of a combination of spring and balls, which not only absorb the vibration but the balls surrounding the plunger, serving he purpose of breaking up the friction at any point of contact, so ensuring the perfect working of the spring. The Reliance Company have also adapted their arrangement to handlebars, with the result that motor-cycling over bumpy roads on a machine □ðtted with

these ingenious devices loses much of its disagreeableness. The **Triumph Cycle Co**, Coventry, show their specially built frame □ðttedwiththelatest pattern Minerva engine, and they have □ðttedaveryclever arrangement for regulating the throttle valve. A rod is □ðttedtothe top rail to the throttle valve, the top end being serrated with a number of notches into which

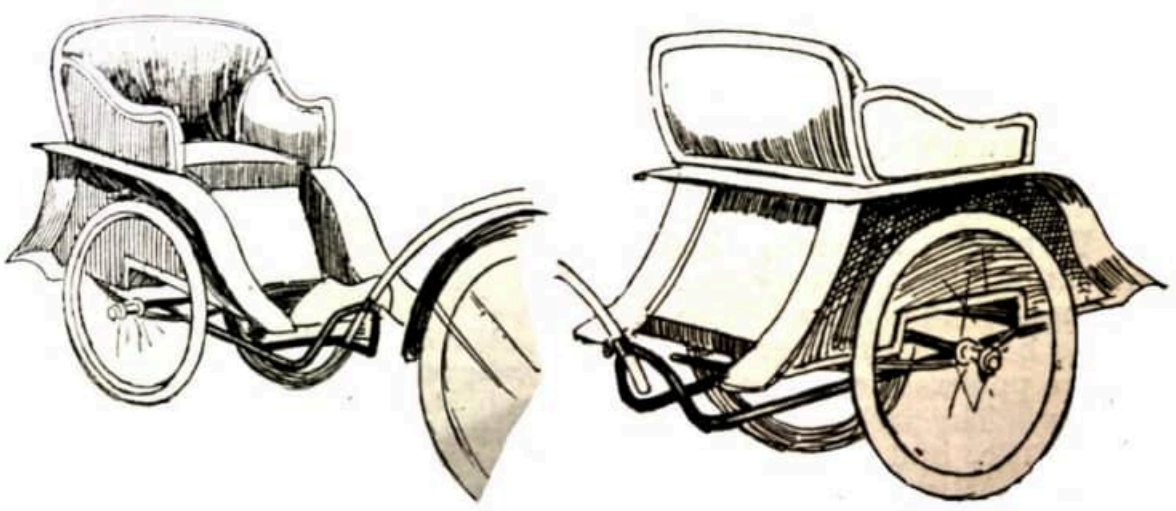


Triumph had assembled a prototype in 1901 but this Minerva-engined example was the □ðrst production model.

engagea small spring governingthe amount of lifting. **Oldsmobile Co**, London, show a motor-bicycle □ðttedwiththeRoyalmotor which is mounted within four tubes, which form the underside of the seat pillar. It has a steel cylinder, whilst the radiator □ðnsareverticalandhollow, allowing the air to pass up freely. These □ðnsarebrazedtop and bottom of the cylinder. TheRoyal atomizer is used, which is composed cf double chambers; these eīectively spray the petrol. A novel form of silencer consists of a tube stopped at the end, having a large number of minute holes, the whole tube being bound with copper wire. Theresult is an almost complete absence of noise with the exhaust; 42 ampere hour accumulators are supplied, and the petrol tank is for 110 miles running. Two brakes of powerful construction are □ðtted;thewholeof the working is done by two levers, close to the handlebars, the switch being on the left-hand. Thedrive is by one chain alone. **Werner Motors**, Regent Street, have a very □ðneexhibit,comprising 11 machines. TheWerner design has been still further improved for 1903. Two powers are shown, viz, 2hp and 2¾hp. Thecarburetter is now □ðttedwithathrottle, and is much neater than last season. All machines are Paris-built throughout, and the □ðnishismostexcel-lent, and will satisfy the most critical inspection. Thetank has been altered in design, the accumulator being now placed in a centre compartment, and the capacity of the largest size tank is 150 miles. The tyres are Dunlop motor-bicycle, specially made for the Werner Company. Lubrication details are also improved. **C Lohmann**, Aldersgate Street, London, EC. Here we □ðndthewell-known Perfecta acetylene lamp, which has given such satisfaction that no alteration has been found necessary. Motorcyclist tool-bags are also on view. **WA Lloyd'sCycle Fittings**, Birmingham. A motor cycle is exhibited, □ðttedwithoneof their own make 2hp engines in which the cylinder and head are cast in one piece. Thebore is 2⅝in and the stroke 2⅞in. Theconnecting rod end is made in two parts to provide for adjustment on the crank pin. A combination hub, having a ball-bearing ratchet free-wheel without springs and a large silencer make up a motorcycle which will

no doubt give general satisfaction. The **Chase Cycle Co**, Birmingham, show a motorcycle, 2¼hp horse-power, □ðttedinavertical position within a loop of the frame, of which one side forms the double top bar, and the other joins the loop for the motor. Automatic petrol regulator and carburetter, one-lever control for exhaust valve and advance sparking. Theengine is placed in front of bracket to ensure a long belt drive, and an outer ball-bearing on the driving pulley is provided, which prevents straining of the crank shaft. **Miller and Co**, Birmingham. TheEdlite, the lamp specially adapted for motorcycles, is now □ðtted,whendesired,with a prismatic lens. It is made in two sizes. A combination red and white light lamp is shown in which the red glass normally attached in front of the re□ðectingconemaybeturned on its hinge against the side of the lamp, out of the way, and is retained in this position by a catch. Thetransparent lens is □ðtted at the inner end of the re□ðectingcone,whichis held in position by a split spring ring, thus enabling the cone and lens to be removed for cleaning. The **Kitto Automobile Co**, Chiswick, SW. Themachines shown by this □ðrmareoftheir well-known narrow type, and adapted so that the engine takes the place of the usual pillar tube, it being □ðxedatthebottom end to the bracket and the down tube, and at the top end by a clip into which the seat pillar □ðts. Theengineis 3¼hp, and has combined mixing valve and throttle, or can be supplied with a □ðoatfeedand spray carburetter. Thetop tube carries the lubricating oil, and the engine is supplied by a small force pump. Thereis a single lever to control the exhaust valve lifter and advance sparking. An exhaust box, capable of being cleaned, is an advantage. **RW Coan**, Myddelton Street, Clerkenwell, EC, shows all kinds of castings in aluminium. Various novelties in the form of souvenirs, badges, medals, etc may be seen here. Aluminium crank cases for motorcycles are made by Mr Coan, who guarantees that castings can be made from a customer's own patterns in a single day. **JN Birch**, Nuneaton, shows two motor-bicycles, one □ðttedwithSimms' Magneto in conjunction with Birch's advance sparking apparatus. This machine is constructed with Birch's patent combined crank chamber and bottom bracket built in the frame; surface carburetter, belt drive, Birch's disc hubs, and compound brake. Theother has a surface carburetter, wipe contact, accumulator, trembler coil, and self-compensating contact. **John L Thomas**, Barnet, Herts. TheCeleripede motorcycle, □ðttedwitha 1½hp Celerimobile engine, 62mm bore and stroke [187cc], with a two lever control and spray carburetter, should prove a good investment at the moderate □ðgureof£40. Fitted with a Minerva 2hp (1903) engine, the same machine is listed at £45. Theweight, 89lb, does not appear to be excessive. A motor-tandem (also called the Celeripede), and □ðttedwitha 1½hp Minerva engine, belt driven, is also on view. Anyof these machines may be supplied with a patent spring fork, which is □ðxedtothe front hub spindle, and by means of which vibration is veryconsiderably lessened. The **Birmingham Small Arms Co**, Birmingham. While not taking up the manufacture of motor-bicycles themselves, the well-known BSACompany are not overlooking the growing popularity of the motor-propelled machine. A set of cycle □ðttings,speciallyadaptedfor the building up of motor-bicycles, was introduced last year. To meet the demand for a frame to stand the strains of the increased power of the motors now being used, and the consequently larger size of tyres, a new set of □ðttingshasbeenintroduced for the 1903 season. Special attention had been devoted to the question of the strength of the front fork. TheBSACompany have no fear of its use with motors up to 2½hp. **Sutherland & Marcuson**, Chandos Street, WC, show some of their latest Umpire ignition cells, also various types of Umpire batteries and accessories. In conjunction with their batteries this □ðrmarenowsendingout an improved form of variable resistance, which it is claimed supplies a long-felt want. **New Coventry Eagle Co**, Coventry, have struck out on entirely new lines. A big loop frame with long wheel base is used, and the motor is placed well forward of the crank bracket in an upright position. Theengine develops 2¼hp, has a one-piece cylinder and combustion head, and is fed through a spray carburetter. Thesilencing is intended

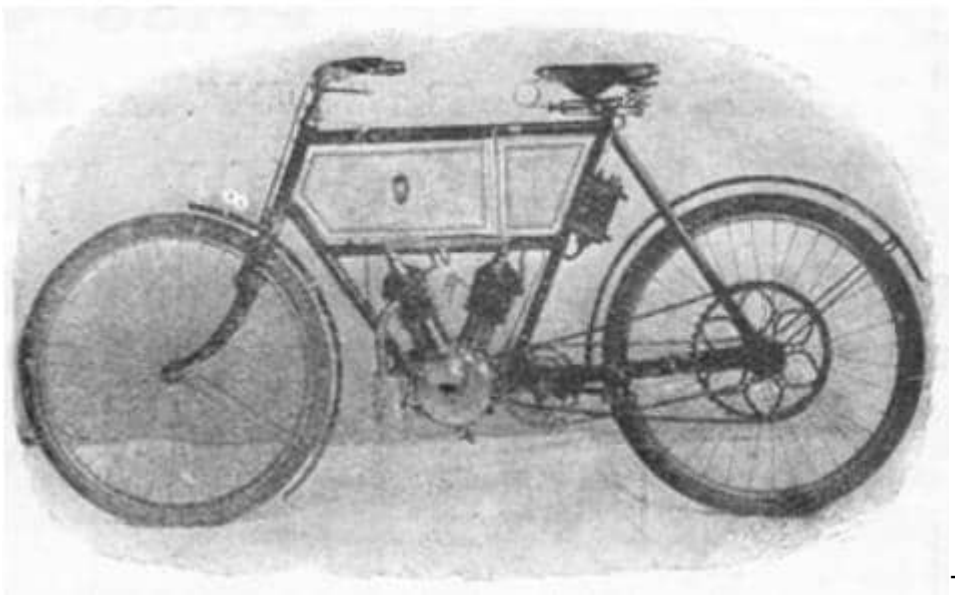
to be eīective, and certainly we have not yet seen so large an exhaust box on any other machine. The tank is capable of holding 1½ gallons of petrol, and space is allowed for battery and oil, whilst the coil is carried by an aluminium bracket. The oil feed is by gravity, and is visible to the rider. Transmission is by a V-shaped three-ply belt. Ample brake power is provided, and both the front rim brake and back Bowden brake are operated from the one lever. The front forks are of the accepted girder pattern and the mudguards are of ample width. The 2¼hp engine sells at £50 with a 1¾hp engine at 45 guineas. The whole of the workmanship and design of the 1903 Coventry Eagle are distinctly creditable to the manufacturers, and we anticipate a very big demand for the machine. The new motorcycle trailer has a □ðnecarriagebuiltbody, with big storage room for touring purposes.



Coventry Eagle reversible trailer.

An important feature of this trailer is that it is reversible. **Davis Allen and Co**, London EC. About half a dozen Mitchel motor-bicycles are staged. This machine, although an American production, is already well known in this country. Suīice to say that the motor is a 2hp, and is located within the frame on the lower tube, driving the rear wheel by a belt. **WR McTaggart**, Dublin, show the FN motor-bicycle. This year the power has been increased to 2hp, the weight of the machine even now being only 90lb. The engine is placed vertically by means of an ingenious hoop in the lower diagonal of the frame, this enabling a longer belt, which is of the □ðat type. The advance sparking lever is provided with a series of nicks, which not only keeps the lever in position, but enables the driver to regulate the explosion to a nicety. **The Princeps AutocarCo**, Northampton. The whole machine is of diīerent design and construction to that lately made by this □ðrm. The single cylinder is of 2¼hp and is cast in one piece, with top radiators going to the centre to eīect the greatest amount of cooling. The crank chamber is bolted to the frame by tee-shaped feet, having four bolts in each, thus making the frame and engine very rigid. A special form of combined □ðoat-feed carburetter and regulator is □ðtted. An entire absence of wiring and levers render this machine extremely pleasing to the eye. A slight movement of the front lever serves to break the current. The engine drives either by belting (Lincona) or by chain gear. This □ðrm is also showing a twin engine of 4hp, □ðtted vertically in a similar manner to the single engine, with the advantage of its occupying no more space than the single type. It also shows an expanding form of a motor pulley of the V-type. By pressing together of the sides of the V the belt is forced outwards, thus giving an increased speed of some of some 25% as a maximum; it also gives a free engine. In the chain-driven type a spring compensating wheel is used to take up the jar of starting with a friction clutch to give a free

engine. The inlet valves are either □ðttedtoworkmechanically or automatically, according to the desire of the purchaser. **JBBrooksand Co**, Birmingham. A very large show of saddles of

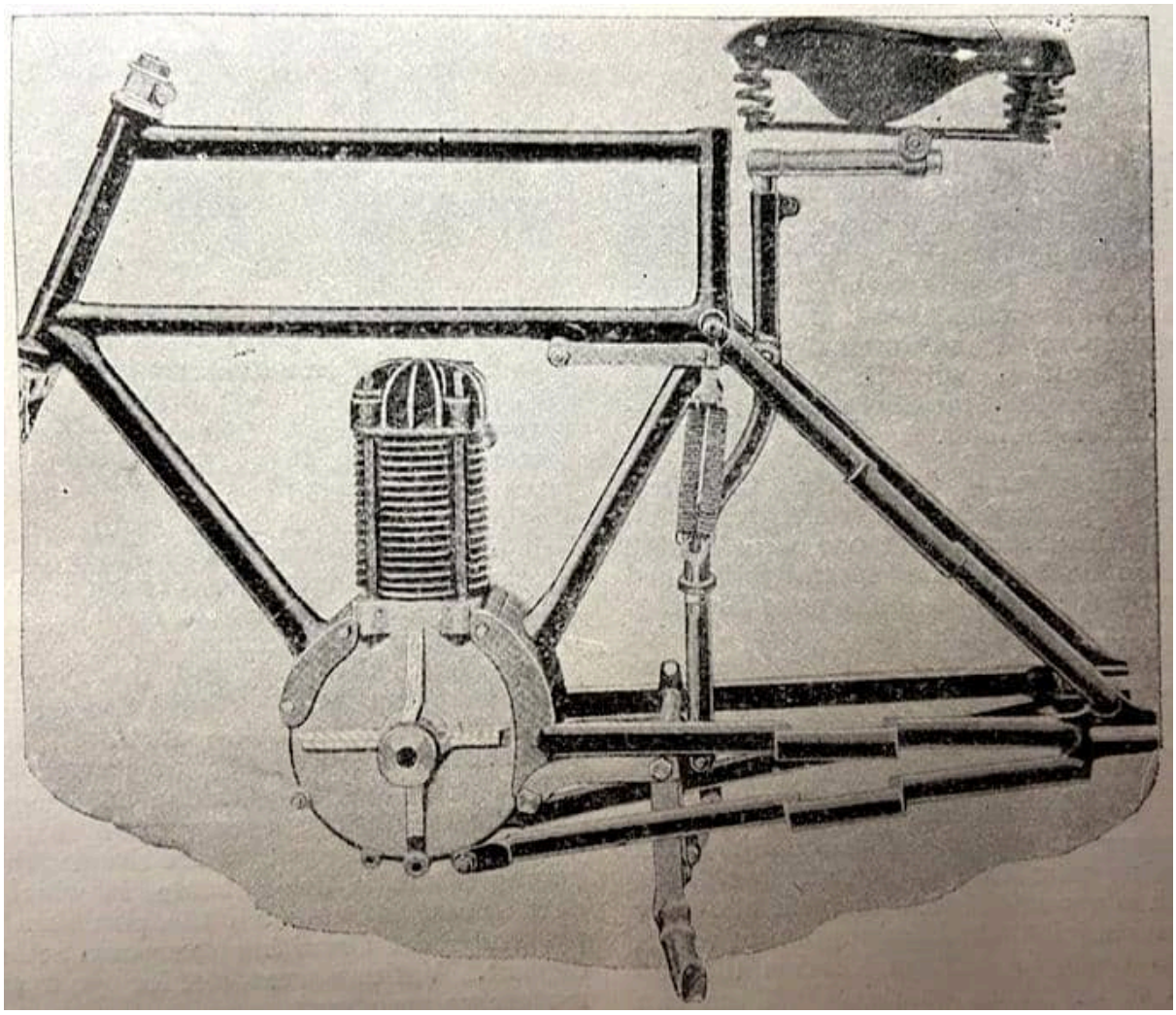


The Princeps V-twin took up no more space than the one-lunger..

all descriptions suitable for motorcycles. Their B85, size 3, are specially designed for those ladies who aspire to motor-cycling [bigger? smaller? We will never know—Ed]. They also make a special back rest for the riders who desire to take things easy, which can be □ðttedtoeither ladies' or gent's saddles. **Harry S Roberts**, Deanshanger, shows the Royal Condor frame with latest pattern 2hp Minerva, □ðttedintheusual manner to the down diagonal. Theframe is specially designed to take the extra weight and strains, the front forks being trussed up. It is □ðttedwitha New Departure back-pedalling hub and brake on the back wheel, with an ordinary rim brake on the front wheel. One lever controls all the operations. Thenew pattern Minerva engine has all valves mechanically-operated. Thedrive is by a twisted hide band on to a wheel secured to the spokes of the back wheel. Thetyres are 2in motor Dunlops. Listed at 40 guineas, this machine should command a ready sale. **PhoenixAccumulators**, London have something distinctly novel in light-weight and high-capacity accumulators. Thepositive electrode is contained in a cylindrical vessel of porous earthenware and this vessel is hermetically sealed, thus the positive element is indestructible. Thenegativeelectrode is also cylindrical in form, consisting of a core of lead surrounded with the oxide of lead. This is then placed complete in a porous vulcanite case, so that this electrode is also well protected. Veryhigh eīiciency is claimed for this battery. **Encore Cycle and Motor Co**, London. This company exhibit the Trexo trailer; a very neat, twin-tube frame of peculiar design, giving, with a minimum of weight, the maximum of strength. A good, powerful rim brake, operated by the foot, is □ðtted, workingonboth wheels, so as to give the rider in the trailer control over the trailer. A particularly good form of universal joint is □ðtted, havingafairly strong spiral spring behind the joint. Thewicker bodies are strong and well-made, and the comfort of the passengeris fully considered. **CR Base**, London, have on show clothing of all kinds suitable for both lady and gentleman motorists. A very nice overcoat will be seen here, double-breasted, with lapels forming a Russian collar, which can be turned down, giving the appearance cf an ordinary overcoat. Zibeline coats for ladies' wear are also on show. Thelatest things in the way of leather vests, also all kinds of leather-lined suits, will be seen here. **GTRiches and Co**, Gray's Inn Road, London, EC, have an excellent show of motor sundries, including some interesting electrical accessories. Amongst these are the brake

lever interrupter and an automatic lamp connection to enable anyone to chargean accumulator from the electric light supply. The □ðrmarebringingout a high-tension dynamo igniter for motors, particulars of which can be obtained from the attendants. All types of contact-breakers are shown, also pulleys, belting, electric wire, sparking plugs, test lamps, voltmeters, accumulators, etc. The new grease remover 'Plaxine' is also to be seen. **Alldays & Onions**, Birmingham are showing a motor-bicycle and a couple of the 'Travellers' which have proved so popular. Theengine of the motor bicycle is of 2hp, and is placed vertically just in front of the crank bracket. Thepetrol tank is of special design. A spray carburetter is employed, and the transmission will be by means of a □ðatbelt.TheTravelleris a three-seated car, two seats at the back and one in front. **Frank Parkyn**, Wolverhampton, show a motor-bicycle □ðttedwiththe Minerva 2hp engine with mechanical valves. Theframe of the machine is extra strongly built ; particularly noticeable are the large hubs, the rear hub having a New Departure back-pedalling brake □ðtted.**TheScottishTyreCo** have a complete show of bicycle and motor-bicycle tyres. These are □ðttedwithboth the adjustable and the endless wires, and multi□ðexlinings.In the Scottish tyre 'de Luxe' for motor-bicycles the rubber and fabric are vulcanised together, and these are of extra strength. **Roman Rim**, Birmingham. Motor rims are shown here, the special feature being their lightness; they are made from an aluminium alloy, which is always bright, and considerably lighter than the ordinary steel rim. When tested these rims were proved to be stronger than the ordinary rims. **E Blundell**, Shropshire. On this stand will be found a liquid patching tyre cement, an entirely new composition for repairing inner tubes or outer covers of bicycle or motor tyres without the aid of rubber or chalk. Torepair a puncture or burst it is only necessary after sand-papering the tyre to place a small quantity over the hole, allowing it to dry, when the tyre may be in□ðated.Thematerial is called 'Patcho'. **The Glencairn Motor and Cycle Co**, Wandsworth, have a specially designed motor-bicycle on view that is designed for the South African market. It has a 1¾hp motor □ðttedwiththe FN spray carburetter. Other features are the Glencairn belt, valve lifter, special front wheel rim brake, New Departure back-pedalling hub brake, BSAcycle □ðttingsandClincher tyres. This machine sells at £35, and looks remarkably good value. **The Clincher Tyre Co**, Edinburgh, have a complete exhibit of their celebrated tyre, which has attained great popularity for motor-bicycle work, in fact, the greater part of the machines on show are □ðttedwithit. Thechief features of the tyre are the ease of detachment and extra hard wearing qualities. Instructive booklets describing the history and method of manipulating the tyre, etc, are obtainable at this stall, and these should be in the hands of every-one interested in detachable tyres. We have had good results from the Clincher on a motorcycle. **Dalton and Wade**, Coventry, have a complete show of motors, castings, accessories and Minerva tank □ðttings.Sectionsofcylinder castings, gun metal, lubricator castings are also shown. Motors for cycles of 1¾, 2¼and 2¾hp, thoroughly well made and □ðnished,willinterest the trade. **The JesmondCycle Co**, Newcastle-on-Tyne, are exhibiting three motor-bicycles of 1¾, 2¼and 2½with water-cooled heads. Theframe is a loop pattern, with vertical engine. Thecarburetter is a Longuemarespray with throttle. Thepetrol tank holds 1¼ gallons, and the oil tank holds suīicient for 120 miles. Theaccumulator is carried in a neat metal case between the back stays and the seat.pillar, and the induction coil is □ðxedonthe second horizontal tube. Thefront forks are duplex, □ðttedtoaspecially strong crown. A clever device is provided for getting at the valves easily without having to dismantle the parts. The timing gear is also easily accessible, and two-to-one wheels are marked, so timing can always be set accurately. Remarkably little wiring is used, and the □ðnishofthemachines is excellent. On the high powered machine the exhaust valve is governed, and speed can be regulated to a nicety in traīic. **The General Motor Car Co**, Norbury and Paris, show two cars, one a tradesman's delivery car, with 4hp motor belt and chain drive which will carry over 200lb at

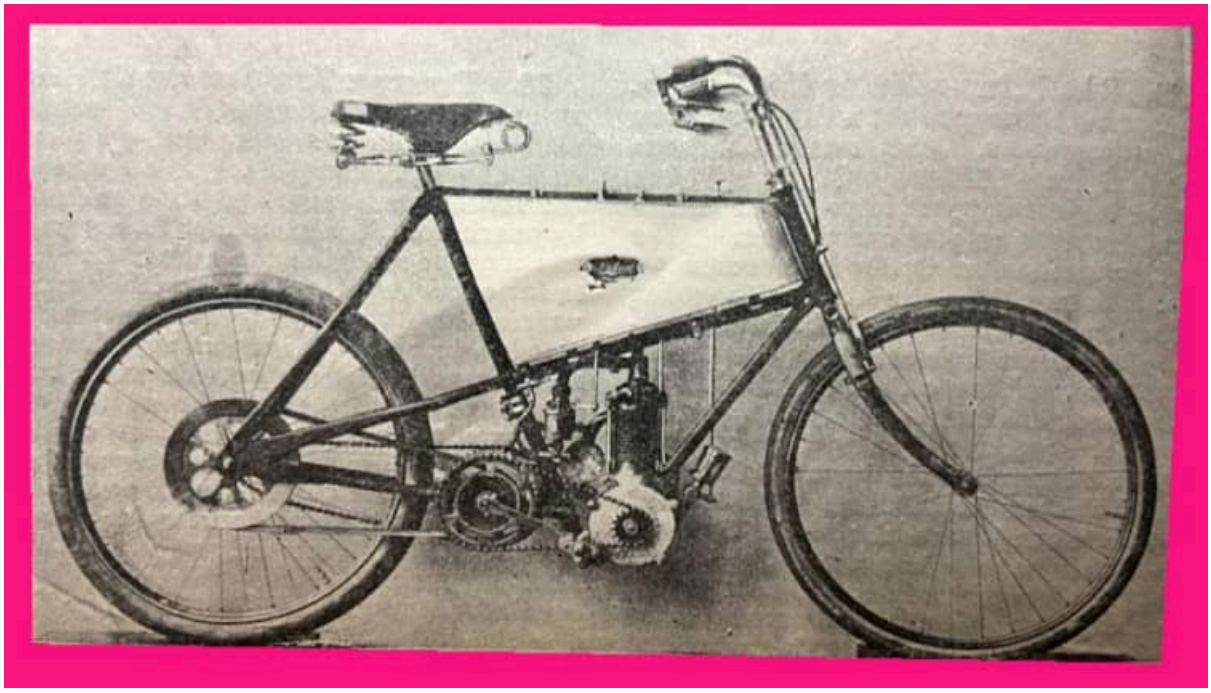
12mph easily. A motor-bicycle is also shown: this is □ðttedwithafree engine and chain drive and magneto electric ignition. Themotor is mounted vertically in the lower angle of frame, and strengthens it considerably. A special feature is the ease with which the machine can be started. All parts of the machine are □ðnishedoīin nickel, giving it a brilliant appearance. **The Primus Motor Co**, London, are showing three machines □ðttedwiththe two-stroke motor. This motor has been described in Motor Cycling, but several improvements have been introduced, notably in the carburetter. Thesparking mechanism is improved considerably. Themachines are □ðttedwithspring seat pillars and are of good □ðnishthroughout.Thisis the lightest motor-bicycle on the market, scaling only 65lb, and the price is remarkably reasonable, viz, £27 10s complete, or out□ðt£1515s.Fornext season the company will have a belt driver on the market, in addition to the front driver ; this will have the motor □ðxedonthemaindown tube in a vertical position. This type of motor has no valves or timing gear, and its construction is exceedingly simple, moreover, it can be adapted to the averageroadster bicycle. **L Leclercq**, of Paris, is showing the Brutus motor of various powers for motorcycles, the engine being constructed on accepted lines. A couple of machines □ðttedupareshown, and although neither of them exhibit novel features, it may be said that they are well designed. Thusthe spray carburetter is well placed for the best eīects to be obtained. Themachines are light, and are claimed to ha good hill-climbers. **The Coventry Chain Co**, Dale Street, Coventry, have a comprehensive exhibit of their specialities from an extremely small chain up to large motor chains, 2⅞in. pitch. A driving chain for motor-bicycles has leather blocks and steel side plates for running over a plain belt pulley on the rear wheel. A handy little speciality is the patent coupling for motor-bicycle belts which is unbreakable.



"The New 'Bat' Patent Spring Frame."

Dorman EngineeringCo, Northampton are showing motor-bicycles of 2, 2¼and 3hp, the engines (own make) being □ðttedineitherthe vertical or inclined position as desired by purchaser. Tankshold suīicient petrol to carry the machine 110 miles; one lever is for the exhaust valve, and the other for advancing the spark. Spray carburetters are □ðtted.The3hpis water-cooled and is □ðxedinavertical position, the water being contained in the front part of the tank with radiating ribs for eīicient cooling. A special feature of these machines is that the silencer is carried underneath the bottom bracket so as to be quite clear of the legs. Complete sets of castings are also on view. **JMarston, Hove**. Trailers are shown here, the special feature of which is that the basketwork is woven on to the framework itself, thus obviating the risk of the basket breaking away from the frame, adjustable arm and adjustable ball and socket clip, all being □ðttedwithalamp clip to show a rear light. Prices from £8 l0s. **Ilford Motor Car and Cycle Co**, High Road, Ilford. A Regina motor-bicycle is here shown, □ðttedwitha 2¾ De Dion engine, in a vertical position. Themachine is driven by a Lincona belt which has a special form of adjustment by a small jockey pulley, depending from the bottom stay and moving vertically in a slot. Lubrication is by a positive sight-feed pump, which can be operated from the saddle whilst travelling. Two brakes are □ðtted,frontrim and back Bowden. **Imperial Motor Co**, Brixton Hill. are showing three motor-bicycles all □ðttedwith2hp motors; the motor is □ðttedinavertical position in a loop of the frame. A spray carburetter and extra large silencer are distinctive features. There is a single band brake on the front wheel, and this looks powerful enough for any

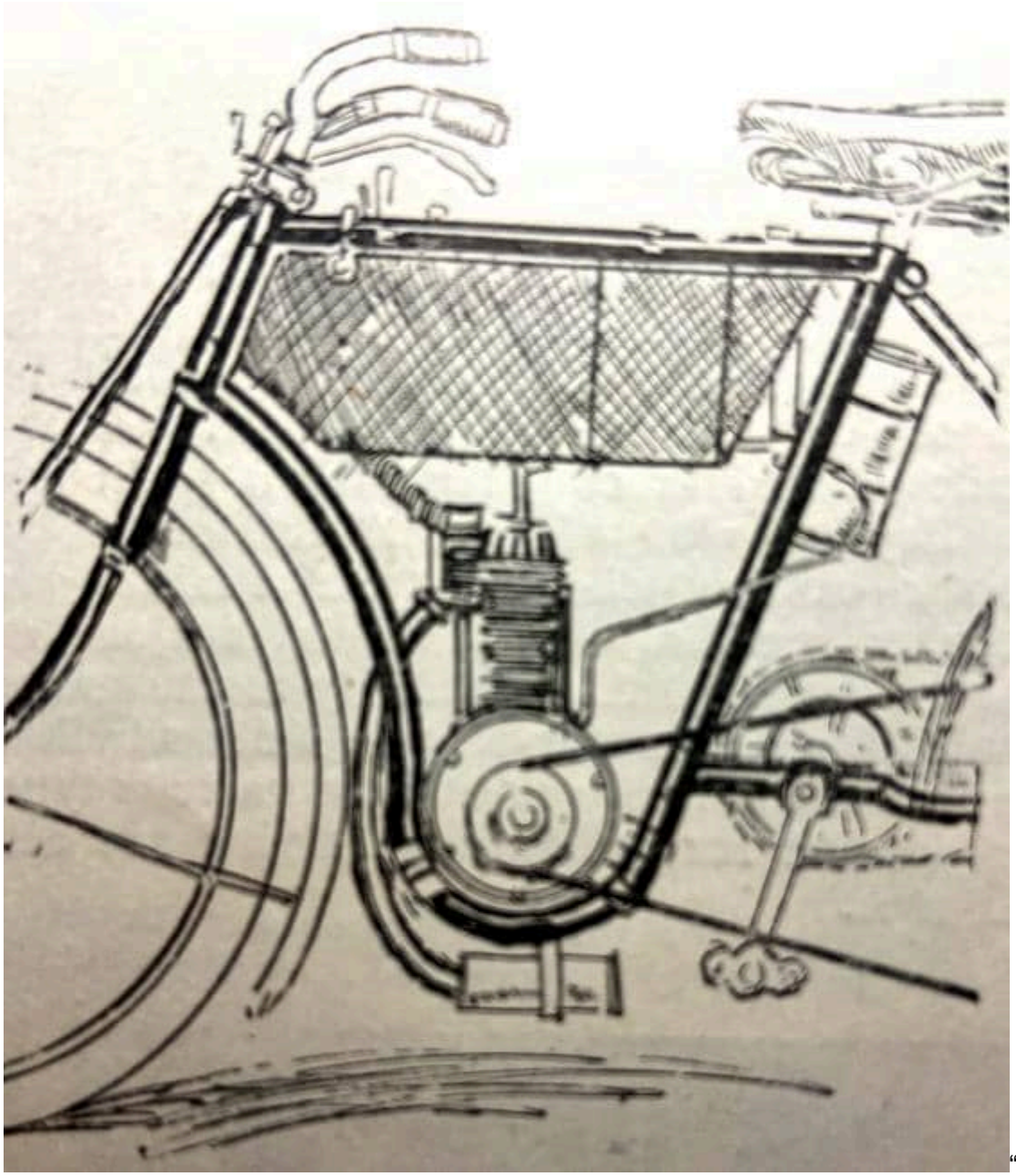
emergency. **The New Palmer** motor bicycle tyre is □ðttedtothis machine: this tyre has an extraordinary thickness of rubber on the tread and looks particularly strong. A sight feed lubricator is □ðxedonthediagonal.A special line in ignition accumulators is also shown, as well as McCurd's bicycle jack. A machine ready for the attachment of the motor set is worthy of inspection. **Bat Motor Manufacturing Co** of Penge,SE.The Bat motor-bicycle has only been on the market for a few months, but it has already made an excellent name for itself, for two reasons. The □ðrstisthat the machine is designed from □ðrsttolast with the one idea of making a thoroughly reliable, strong, and powerful motor-bicycle, and the second reason is that the machine has developed a wonderful turn of speed, and this is solely due to the complete harmony of the system. Themachine has a close, compact frame, □ðrmlystayedforthe work. In the No I pattern a 2¾hp De Dion air-cooled motor is employed, and in the No 2 the power is 2½. Themotor is placed vertically in



"The New Raleigh Motor Bicycle.".

the frame, and a stay runs from the bottom of the motor casing to the rear axle. Thepower is transmitted through the Bat patent pulley and a Chicago raw hide belt to the rear wheel. Thebelt fastener is extremely neat and eīective, and the patent switch, operated from the Bowden brake lever, renders the breaking of the current instantaneous. At an extra charge the new patent spring frame can be given, whereby the rider is carried on an insulated portion, and all vibration is avoided by an excellent method. A spray carburetter is used, and a petrol tank of the capacity of 1½gallons is provided. Themachine has neither pedals nor chain gearing, because the rider's power is dispensed with at starting and on the road, as the machine will climb any hill. FW Chase has recently done some marvellous performances on the Bat, proving almost without a doubt that it is one of the fastest motor-bicycles (of a reasonable horse-power)in the world. **Hans Renold** of Manchester has a complete line of motorcycle chains from ³⁄₁₆inwide upwards, and motorcar chains up to 2½in wide. **Mills and Fulford** are showing a very varied assortment of trailers for towing purposes behind cycles and motor-cycles. Thenewest pattern is heavier and more strongly built for use with a motor-cycle, the basketwork being closely woven and most comfortably upholstered in coloured leather. **Raleigh Cycle Co**, Nottingham. Thenew Raleighmotor-bicycle is something quite fresh and diīerent to anything at either Show.

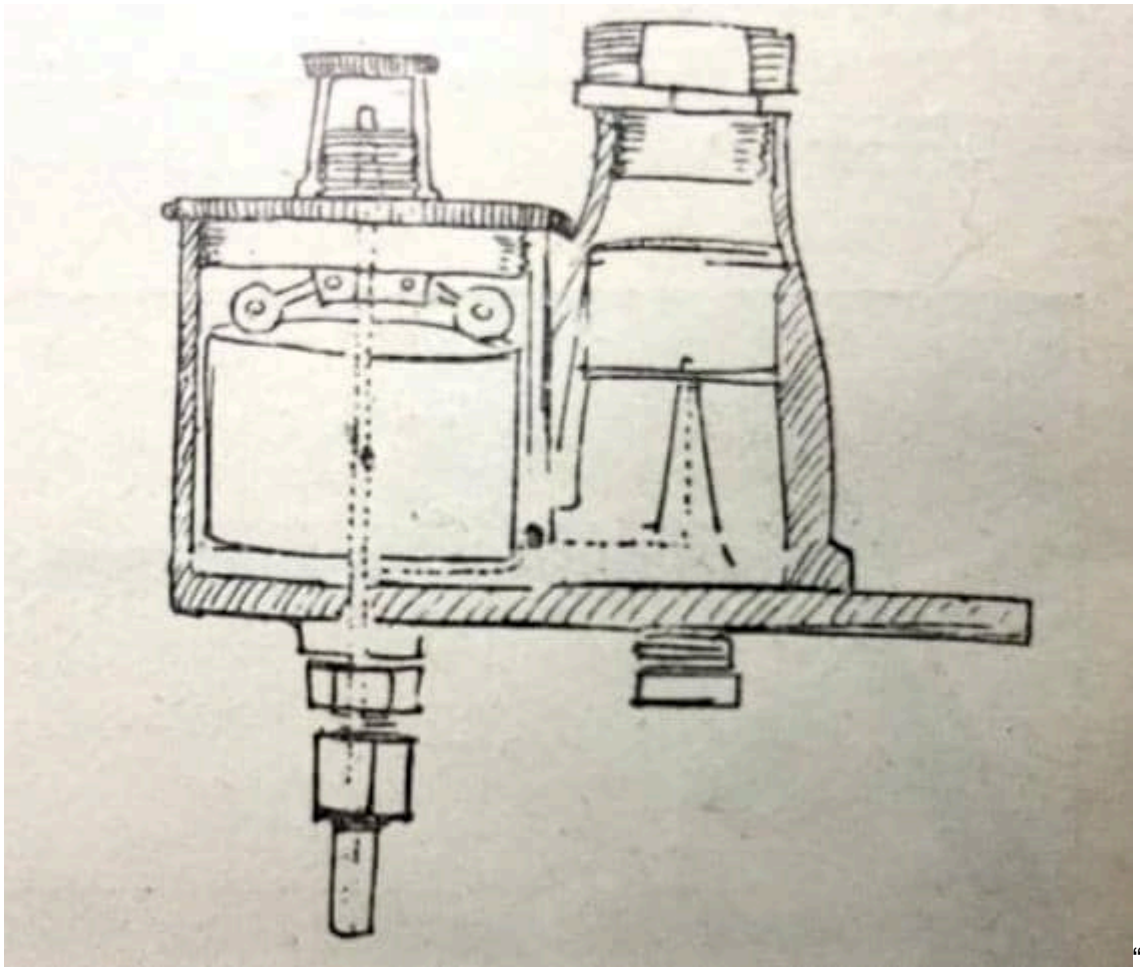
A modi□ðcationofthe Raleigh Cross-frame is used, a tube running from the bottom of the head to the main down tube, where it divides, and is carried in duplicate to the back hub. The2hp engineis situated in front of the bottom bracket, to which it is bolted in four places, and is also supported by two tubes running from the bottom of the head. Thedrive is taken from a small chain wheel on the engineshaft to a larger chain wheel on the bracket spindle by a chain. Fastenedin-side the large chain wheel and running with it, is a belt pulley, and from this the drive is carried by a V belt to a larger pulley on hack wheel. Thegearis thus reduced in two steps. On the left-hand side is the ordinary chain and chain wheel for starting purposes. The enginecan be oiled while in motion by a tap on the top of the tank, and the mixture is regulated by



"The Star motor cycle."

another tap in a similar position ; all other movements—advancespark, exhaust valve lift, etc, are operated from the handlebar. As a spray carburetter is □ðttedthemixturerequires very little

alteration while riding. In the upper panel of the frame is a large but very neat tank containing petrol, oil, coil and accumulators. There are no odd □ðttingsfestooned about the frame. Altogether the new model is a credit to its designer, Mr GP Mills, and should bring grist to the Raleigh mill. **Star Cycle Co**, of Wolverhampton, show four motorcycles for the □ðrsttime, and they embody some novel features. Three of them have engines of 1¾hp, surface carburetter, coil and accumulator ignition. The oil reservoir is part and parcel of the carburetter case, the feed pump being placed close outside. Another pattern has a Simms engine, with magneto ignition. The frame is well designed, having a long wheel base, and strongly constructed forks and head. A superior motor-bicycle is now being designed for next season. It will have a 3hp motor, with a water-cooled head, the inlet valve being operated mechanically. Simms-Bosch ignition will be used in this machine, as the Star Company have ample faith in this method. **CM Berthe**, Colombes, near Paris, is showing a couple of motor-bicycles, one having the engine in the Minerva position, and with no departure from accepted lines except that it has a spray carburetter. The other has the motor in a vertical position. Both patterns will be oīered to the public through English agents. A brake acting on the belt pulley is shown. The Paree is one of the neatest and best designed spray carburetters we have yet seen; the accompanying sketch shows the □ðoat and the counter-weighted point-feed. Above the jet is a gauze box, the air being drawn in from underneath. Above the projecting end of the point-feed is placed a cap to prevent dust entering—a very good feature Various patterns of plugs are shown, among which is the Robuste, in which a deep recess is made on the porcelain to prevent short circuiting over any deposit.



"The Paree Carburetter."

RUDGE-WHITWORTHDATEDBACKto1894, when the Rudge Cycle Co merged with the Whitworth Cycle Co; the □ðrmburstontothe motor cycle scene at the 1910 Olympia Show as did AJS;readall about it in 1910. Theyboth went on to win worldwide fame and glory. But Daniel Rudge,who founded RudgeCycles, had a son named Harry, who teamed up with Charles Wedgeto produce Rudge-Wedgebicycles, and as Motor Cycling reported, Harry beat his dad into the motorbike business with a launch at the Stanley Show:"This machine is constructed by the old-established □ðrmofRudge-Wedge,Wolverhampton, whose cycles are well known for their high quality. Themotor, which, can be had in two powers, either 1¾ and 2¼hp, is placed in an inclined position inside the frame, and is strongly supported between the diagonal and main tube. Thedrive is by means of a triangular-section belt. Thelubricator pump is conveniently placed alongside the steering socket, and either a spray or surface carburetter can be □ðttedat option. Theaccumulator, which has a capacity equal to 600 miles running, is carried in a metal case at rear of diagonal tube. A large silencer of cylindrical shape is □ðtted.Anotablefeature in the design of the motor is the position of sparking-plug, which is placed in the centre of the combustion head. Thecontrolling levers are conveniently placed. All the bicycle parts are of special strength, and a rim brake is □ðttedtothefront wheel. Thepetrol tank has capacity for 140 miles running. Theprice of the 1¾hp machine is £40, and of the 2¼hp, £42 net." RudgeWedge & Co ran into diïiculties during the cycle trade slump of 1906 and were taken over by Rudge-Whitworth. RudgeWedgebicycles continued to be sold as part of Rudge-Whitworth's budget rangebut there were to be no more Rudge-Wedgemotor cycles. None survive, but let it be remembered that the □ðrstRudgemotorcycle wasn't a Rudge-Whitworth, it was a Rudge-Wedge.

"THEREWERE202 MOTORCYCLEexhibits at the Stanley and 114 at the National…The Shows were most successful. Thegreatest interest in the motor exhibits was displayed by the crowds of visitors."

"IT ISTOBEHOPEDthat at future shows the trade will take steps to appoint attendants who know the motor exhibits. It is no exaggerationto say that to describe the knowledge of some of those in charge of exhibits as even super□ðcialwouldbe too complimentary a term."

"THAT LADIESARETAKINGto motor cycling is now certain, and amongst other □ðrms,theNorton Manufacturing Company, BromsgroveStreet, Birmingham, are making a special type of machine for the fair sex. This is □ðttedwitha Clement-Garrard motor, two-speed gear, spray carburetter, brake switch and everything simpli□ðedasfar as. possible."

"A CLUBFORKENT.A meeting was held on November 19th at Brockley, and the Kentish Auto Club was formed for motor cyclists; headquarters, the Brockley JackHotel, Crofton Park, SE."

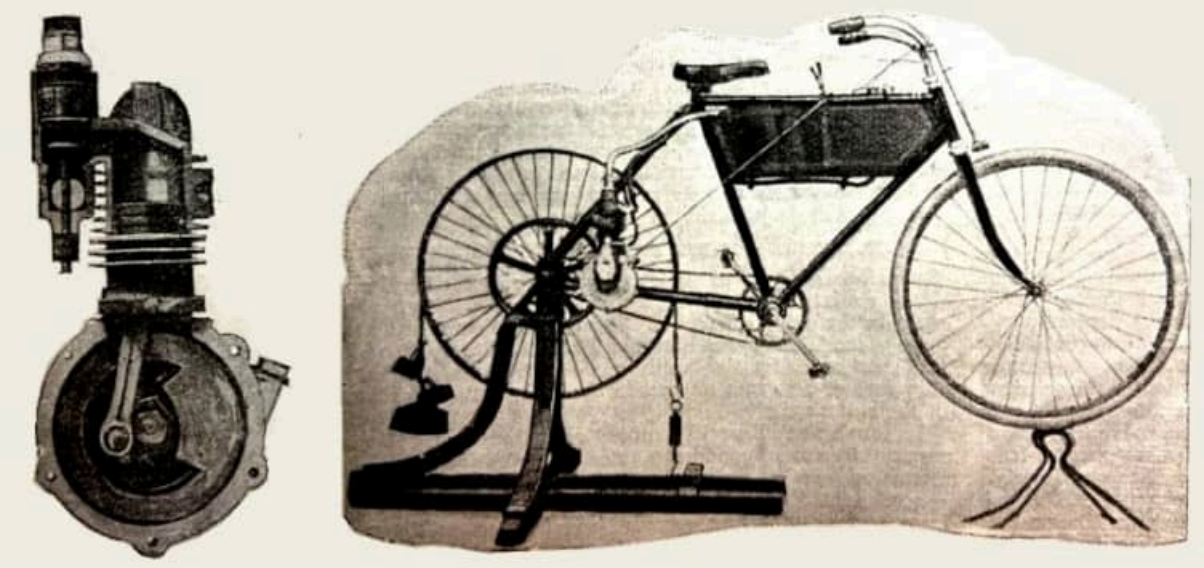
"THE NEWRAPIDMOTOR-BICYCLE.Thishas a 2¼hp Kelecom engine mounted on to a special frame, □ðttedwithmanyof the New Rapid special cycle features. Thepetrol tank is of unusually large capacity; this is provided with an indicator petrol gauge,showing on a dial the exact amount in the tank. Lubrication is provided by an automatic system. Thecarburetter is of the spray type. A very neat and eïective combined valve lifter and current breaker, actuated by a Bowden wire, is an interesting feature. Needless to say, the machine is splendidly □ðnishedin every detail"

"THE SWIFTCOHAVEdecided to put a high-class motor-bicycle on the market, and a recent inspection of one of the □ðrstsamplesturned out by the □ðrmproved—asmighthave been expected—that the work is fully in keeping with the reputation the □ðrmhaveearnedfor accurate and highly □ðnishedwork.Themachine is of very symmetrical and pleasing design, and has a

2hp motor mounted in a vertical position well in front of the crank bracket. The drive is by means of a Lincona belt. A surface carburetter is used and also high-tension electric ignition. The advance spark lever works on a ratchet quadrant, so that there is no chance of the lever moving with vibration. The steering head is specially strong, and a stout additional tube is taken up to the handlebar clip. The silencer is of large size, placed low down. A powerful front rim brake and Bowden back brake are provided, and 2in Dunlop motor tyres are □ðttedtothe wheels. A good type of exhaust lift is a notable feature."

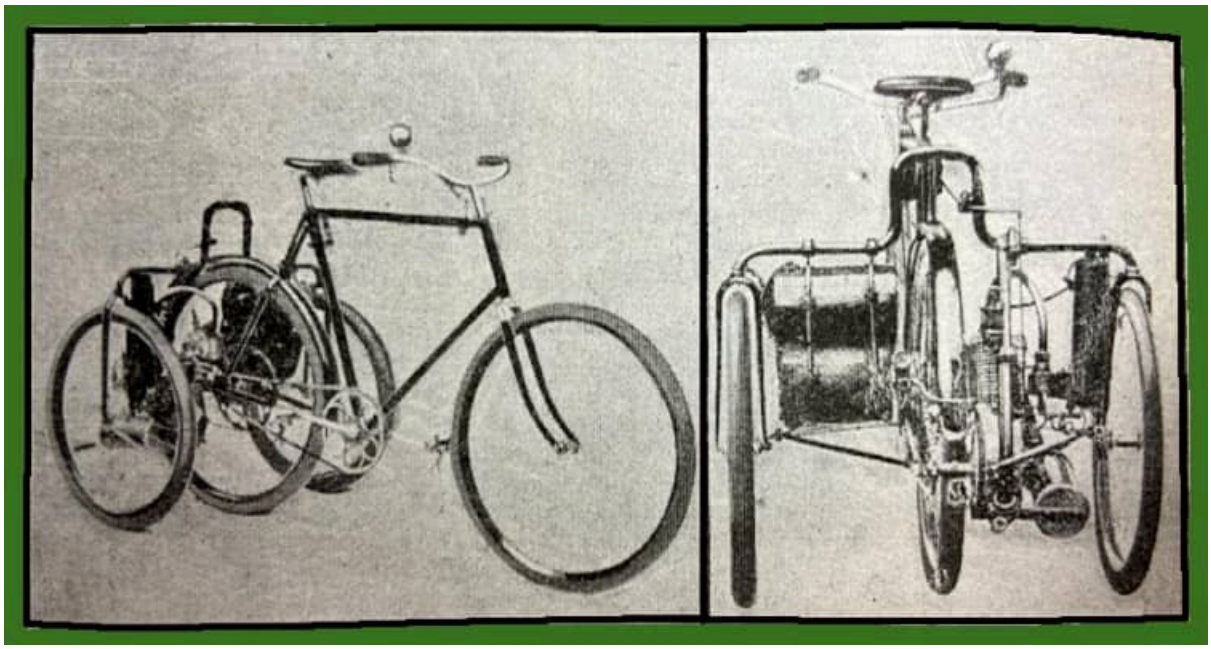
"AN OPEN 100-MILE run was recently conducted by the New York Motorcycle Club, over the Brooklyn-Valley Stream Amityville course on Long Island. The run was started in two divisions, one hour apart, the fast section scheduled to complete the distance in six hours, and the slow section in eight hours. There were 30 starters in all, 14 being in the fast section; 17 riders accomplished the distance in the time, the others having tyre, belt, or electrical breakdowns. The successful machines included several known in this country, such as: the Royal, Orient, Auto Bi Indian and Kelecom makes."

"THE MACHINE MADE BY Georgia Knap, of Troyes, France, is remarkably light and simple in construction, and is probably the smallest and lightest motor on the market. The bore and stroke of the cylinder is 45x45mm (72cc) and the maximum speed 2,400rpm. The cylinder is in one piece with the combustion chamber. It has interior □ðywheels and the weight of the motor alone comes out at only 14½lb. The compression is specially high. At its maximum speed this little motor will develop just over 1hp. The method of □ðxing the motor and transmitting the power is distinctly novel. It is attached to the compression stays and back forks by means of lugs brazed to the tubes. Mounted on the back wheel axle of the bicycle is a large gear wheel into which the motor pinion wheel engages. The drive is thus a direct one minus belt or chain. The carburetter is a simple surface pattern and ignition is by means of a small coil and accumulator; lubrication is eīected by means of a gravity feed. There is one lever for advancing the spark and opening the exhaust, and another for the throttle valve. From the illustration it will be observed that the machine is mounted up for a power test by means of a dynamometer. This is a very simple apparatus, consisting of a cord, adjustable weights and a spring balance. The rear rim has its tyre removed and the cord is passed round it. Then, by a well-known formula, it is possible to calculate the horsepower developed by the little motor with great accuracy."

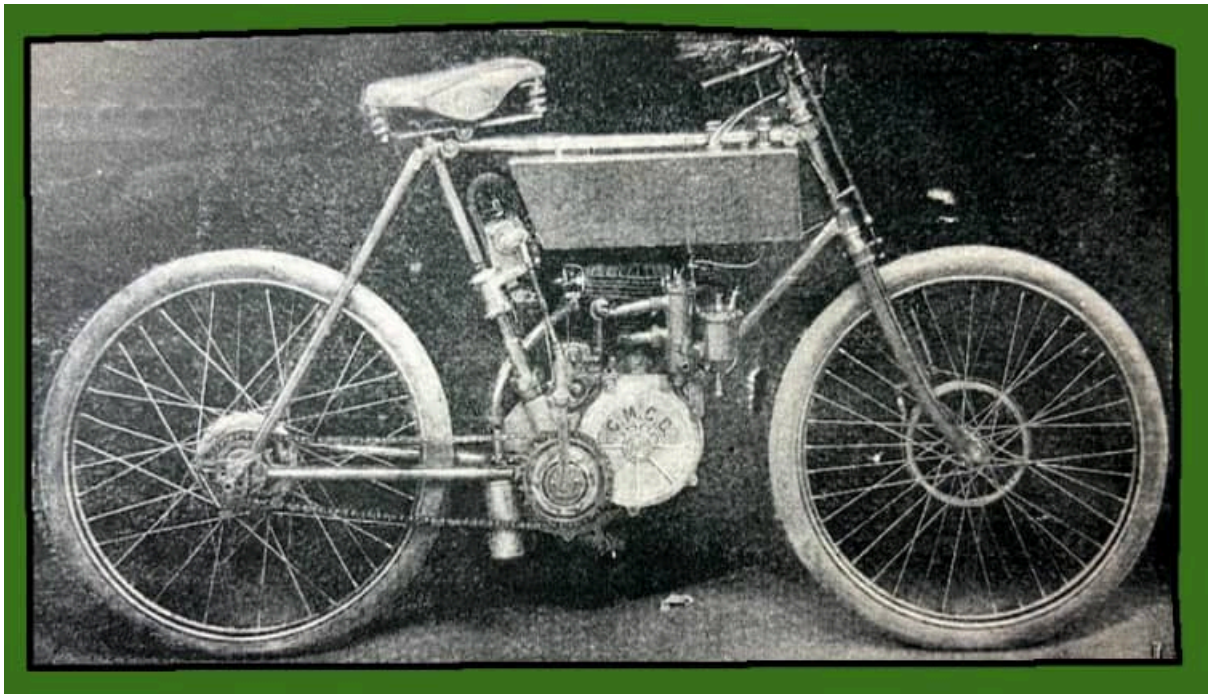


The 72cc Knap engine weighed just over a stone; it was tested on a □ðrst-generation dynomometer.

“THIS IS AN AMERICAN IDEA of doubtful value, it would seem, but interesting from the point of distinct novelty. The idea is to have an attachment that will quickly convert an ordinary bicycle into a motor vehicle. To do this, the inventor uses a rear frame carrying an entire motor mechanism, consisting of a 2½hp air-cooled motor, carburetter, and tanks complete. The frame consist, of a single tube carrying two pivotted or hinged forks for the two wheels, and this attachment is clamped on to the rear stays of the bicycle by lugs and bolts by means of a cross stay, which also carries a reduction gear and chain sprocket from the motor drive. The bicycle, it appears, is provided with an extra large chain-sprocket on the back wheel axle. so that it can be connected up to the motor sprocket by means of a chain and thus be driven. The regulating levers are connected up along the horizontal tube of the bicycle.”



“A Convertible Bicycle.”



“The GMCC chain-drive motor-bicycle □ðttedwithclutch for starting, and magneto ignition…possesses the feature that it can be started up □ðrstbysimplygiving the left pedal a half turn, the rider then mounts and puts in the clutch, and away he goes. Only a single chain is sued for transmission, one reduction being made by a piece of gearing.”[“A half turn” of the pedal…a kickstart in all but name?—Ed.]

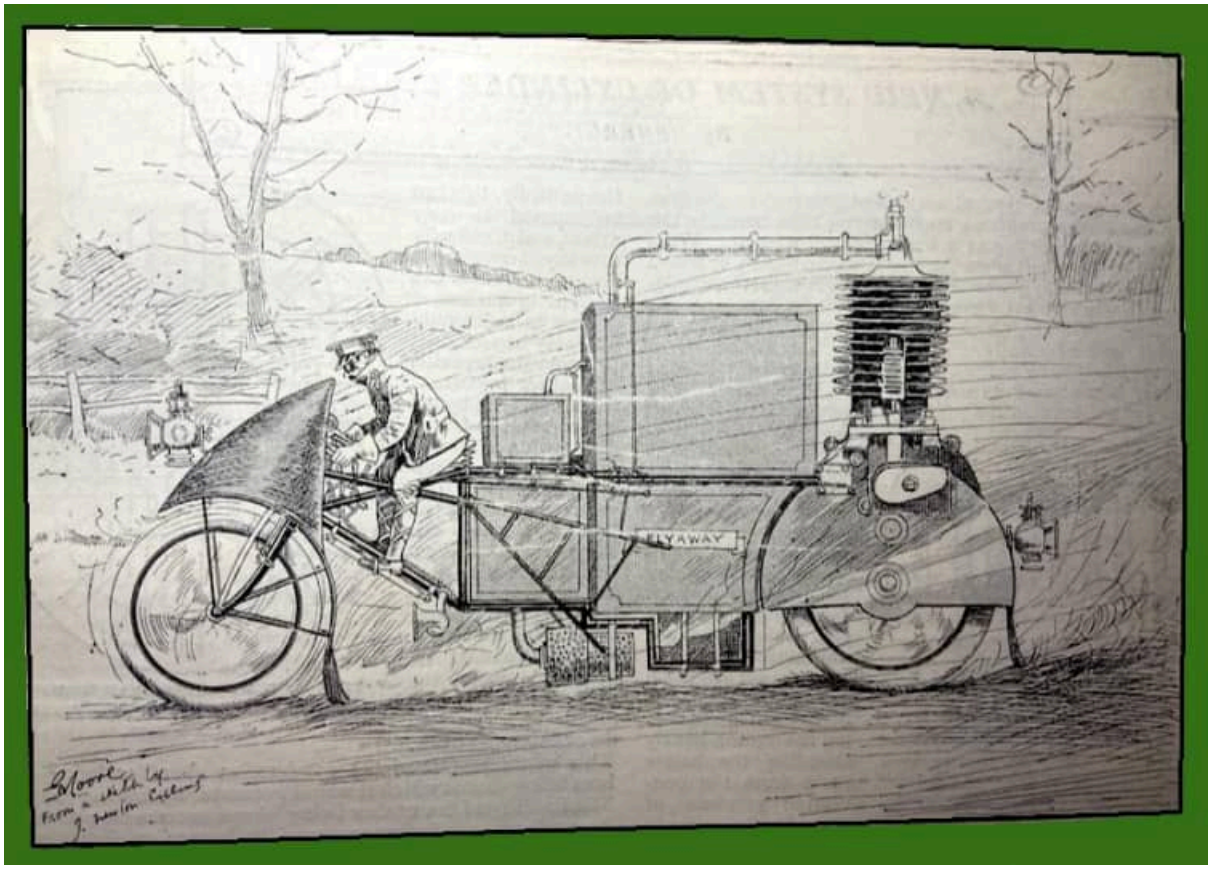
“WE CULL THE FOLLOWING quaint little bit from the Bicycling World of America: ‘Will Pitman, the originator of the wheeze, is one of the oldest (in experience) cyclists in New York, and as a motor-cyclist is always full of quips and cranks…on the cold Saturday morning of last week, when he got out before breakfast, Pit had his faithful Kelecom motor-bicycle with hire and came exploding down in □ðnestyleat7am. The thermometer stood at 35, and the Kelecom stood against the side of a building opposite the WaldorhAstoria for half an hour. With the cold carburetter the gasoline did not etherize readily, and Pitman had trouble getting the machine a-moving…Pitmanled the way to a hostelry, where he lugged the big motor bicycle inside the swing doors and stood it up near the radiator. Then he and this companion warmed their inwards liquidly and lingered over their imbibing while the motor was getting warm. When he took the machine out again it started with the □ðrstspark.andPit.sailed oī looking as pleased as a babe with a tickled foot…Ahint worth noting.'”

“AEL (CHESTER) WISHES to know the precise diīerence between a trembler coil and coil without trembler, and what advantages has the trembler over the non-trembler?—In the trembler coil the contact is made and broken in the primary circuit of the coil a considerable number of times during the instant of ignition; the result is a stream of sparks of great intensity and heating eīect taking place at the plug. Then what is termed a ‘brush’ or rubbing contact is made on the motor cam shaft, this is self-cleaning and unaīected by oil. In the non-trembler coil only a single make and break occurs at each ignition period; this means a single spark, which some authorities claim may not always be of uniform intensity or is too instantaneous to □ðrediīerentstrengths of mixture at various compressions. However this is a matter of opinion, as entirely good results can be obtained with the ordinary make and break providing it is well adjusted and the accumulator is well up to voltage. The trembler on the motor, or more strictly

speaking, the contact make and break, demands perhaps more attention than the brush, but coil tremblers can get out of adjustment as well, and are by no means. easy to adjust perfectly."

"IT WAS NOT EXACTLY an ideal day for record attempts on Tuesday week, but FW Chase braved the keen easterly wind and did a splendid ride on the Crystal Palace track. Mounted on his 2¾hp Bat motor-bicycle, he covered 228 miles 250 yards in six hours, and only stopped once during the whole ride. He thus beat EH Arnott's previous best of 212 miles 586 yards by nearly 16 miles—to be exact, 15 miles 1,424 yards."

"Quite arctic. Group taken after the record ride by FW Chase at the Crystal Palace on Tuesday last."



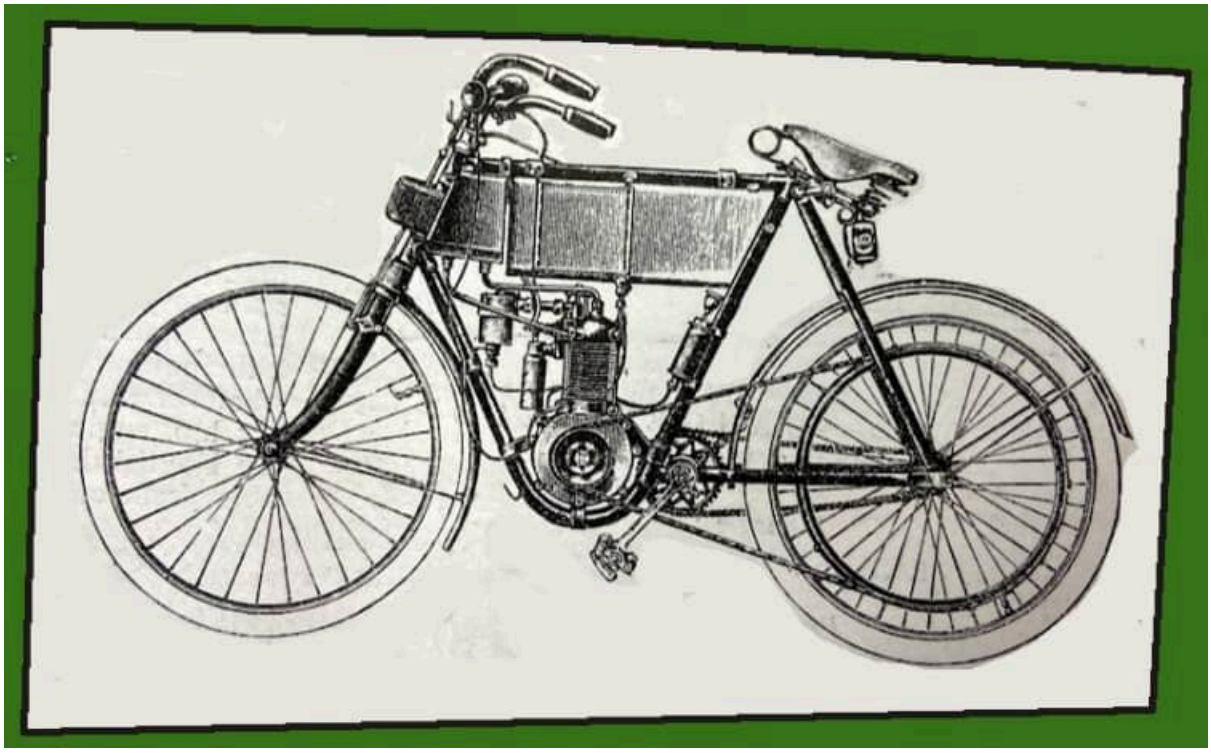
“A reader’s idea of the future of the motor-bicycle.”

“AH (WISBECH)WRITES—’Pleaseanswerthefollowing questions and oblige. I am wanting to make a coil for cycle motor, two-stroke principle. (1)Would trembler coil be best? or would one where contact is broken on engine do equally as well? (2) What size spark coil is best? (3) What is quantity and gaugeof primary and secondary wire? (4) What is length and diameter of the wire care? (5) What is the diameter of complete coil? (6) What is the size of condenser and number of sheets of tinfoil, and where is this placed to make all as compact as possible? (7) Would square ends, be best for bobbin, and would these do to serve as ends of case, as I propose □ðttinginawooden case when complete?’—(1) Would recommend coil without trembler, being simpler and quite eīective if well made. (2) One giving ⅜in spark in air. (3) Six ounces No 18 SCCW(or two layers) for primary, and ¾lb. No 36 silk-covered wire for secondary. (4) Core 6in long, 4in diameter. (5) About 2½in diameter. (6) Make condenser of 40 sheets tinfoil, 5x4in, to wrap round the coil. (7) Square ends more convenient for □ðttingincase,but does not concern working of coil in any way.”

“HAVING READWITHMUCHinterest accounts of trips in Motor Cycling, I think you might like to hear about a ride I recently undertook on a 1¼hp FN motor-bicycle. Thejourney in question was from London to Filey, Yorkshire,and it was rendered more interesting by the fact that I towed a friend on an ordinary machine. Not knowing the road out of London, we took train to Waltham Cross, whence we started at 3 o’clock on a Sunday afternoon. We did not start well, as on the rising ground between Waltham Cross and Ware the belt, which is a □ðatoneandpractically new, slipped somewhat. I rubbed in some castor oil, and found the result very satisfactory. We reached Huntingdon, 48 miles from our starting place, shortly after 6pm, and here we had some tea at the Fountain Hotel, and here I tightened the belt, as it had begun to slip again. The 18 miles between Huntingdon and Peterborough was covered in an hour and □ðveminutes.We

stayed the night at the Angel Hotel. The motor-bicycle is evidently a 'rara avis' in Peterborough, as we were surrounded by a large and curious crowd as soon as we dismounted. Next morning we started at 9.30am, having obtained a fresh supply of petrol and lubricating oil. The run to Lincoln was rendered rather tedious by a strong head wind, which, indeed, had troubled us all the way, and which necessitated a good deal of pedalling on the part of the 'towee'. A very good lunch was despatched at Lincoln at the Saracen's Head and then we negotiated the severe climb up the cathedral hill in our separate ways, the hill being so steep that I had to dismount and run by the side of the bicycle, which, of course, was propelled by the engine. Arriving at the top we hitched up again and made for Brigg, the road being practically straight for the whole distance, though slightly undulating. At Brigg I re□ðlled my petrol tank and started for Newholland. Having been misdirected we lost our road and went three or four miles out of our way. At Newholland we just missed a ferry boat and had to wait an hour for the next. However, we made use of the time by having tea, and are quite sure that motoring is a good appetiser. Crossing the Humber, we rode through Hull at a slow place. Reaching Beverley we again lost a few miles by missing the road between this place and Driïield. So far our ride had been extremely pleasant, but for the last 25 miles between here and Filey it had been raining hard all day, rendering the roads very slippery and muddy. The 'towee' had a lively time, very soon becoming quite coated with mud thrown up by my back wheel. Darkness set in so that we could not see far before us and rain fell in torrents, quickly drenching us. At last we reached Bridlington, and thought our journey was practically over, but it was not so, as we found we had a dozen more miles before us, riding through mud, rain, and pitchy darkness. The latter condition nearly brought our ride to an abrupt conclusion, as, on a slight incline, going fairly fast, we heard a hail, and dimly made out, a few yards ahead, the tailboard of a wagon which showed no light whatever. I switched oī the current and applied the brake, and just managed to avoid a collision by swerving to the right. To add to our joy, we again lost our way, owing to inadequate directions on the signposts, to examine which we had to dis-mount and throw the light of our lamps upon them. We □ðnally inquired our way to a cottage and reached our destination at 10.15pm, wet, muddy, tired and hungry. Fortunately a good supper awaited us and we were soon able to regard our ride as an enjoyable experience, in spite of its unfortunate □ðnish. The total time spent on the road was 14½ hours and the distance a little over 200 miles, thus averaging nearly 15mph for the whole journey—no mean performance considering the state of the roads for the last 30 miles, the fact that we had a strong head wind nearly all the way, and that the bicycle had only been ridden 250 miles previous to this trip.
F Brereton Hurndall."

"THE FAFNIR MOTOR is one of the latest German-built machines. The motor has a cylinder bore of 2½in, and a stroke of 2¾in, giving 1¾ eīective horsepower, which has proved suīiciently strong for ordinary roads and hills. The motor is very small, and has a weight of only 23½lb. The bearings are wide and of phosphor bronze. The exhaust has no• thread, as it is considered that threads are liable to become so set that only breakage can remove them. A bridle lock-is used instead, which can be removed by loosening a screw. The exhaust valve lifter is used as a regulator, doing away, with a compression cock. As on large motors, the crank chamber has a small ball valve. The lubricating arrangement is very neat, and a connection between the oil tank and the crank case can always be made at whatever angle the motorcycle may be placed. The regulation of. the gas and the control of the motor are simple. The Fafnir motor, as well as the motorcycles, and single parts of each, are supplied by Aachener Stahlwaarenfabrik at Aix la Chapelle, in Germany. It is the □ðrst German □ðrm to supply the parts of the machinery and bicycle for small makers to construct their own motorcycles."



"The Fafnir Motor-Bicycle"—Fafnir oīered Germany's □ðrstproprietaryengine.

"WERNERSMOTORSHAVEreceiveda good testimonial as to the power and reliability of the 2¾hp Werner. A machine □ðttedwiththis engine, which has run 6,000 miles without the slightest sign of wear, belongs to Mr Fairfax, of the London General Motorcar Co, and that gentleman recently did a journey of 250 miles on the East Coast, during which time he had absolutely no trouble at all, having to touch neither engine nor bicycle."

"IT IS INTERESTINGtonotethat at the suggestion of Mr SF Edgemotor-bicycles will compete in a special class by themselves in future trials organised by the Automobile Club. It is further suggestedthat manufacturers and sellers should be called together to discuss a 'Motorcycle Trial'. We have now had it most conclusively proved that the motor-bicycle can hold its own in the very best of motor company, and the special classi□ðcationofmotorcycles in the forth-coming trials will be an experiment of considerable interest. We observe in the paragraph relating to the suggestionin the Automobile Club Journalthat the terms 'motor-bicycle' and 'motorcycle' are both used. It will be necessaryfor the club to draw the line somewhere, as the term motorcycle is capable of a wide interpretation. Already the motor-bicycle is in a state of metamorphosis; in some instances we □ðndpedalsandcranks being dispensed with, and elsewhere in this issue we illustrate one particular exhibit at the Paris Salon which in reality is a two-wheeled motor-carriage."

"IN THECASESparksvs Booth some most remarkable evidence was given in respect to the experiments that haverecently been made with petrol, where the plaintiī claimed that a lighted cigarette had caused the ignition of the petrol, while being poured into the tank of a motor-bicycle, which was the cause of it being burnt up. A verdict was given for the defendant with costs. No doubt the readers of Motor Cycling will be pleased to hear that petrol is not half as dangerous as it is supposed to be, provided a naked light be kept away from it."

"THE FIFTH SALON, as the French call their show of this year, is a revelation, at once in point of its size, the excellence of its working arrangement, and the very high level of the exhibits. When one remembers the little family party which we called a show at the Salle Wagram □ðveyears ago, its rapid development to the present gigantic aīair is little short of startling. In those days a dozen exhibits were considered phenomenal, and we felt highly □ðatteredifwecould attract a few hundred interested visitors. Now—well, we have just left the Grand Palace, our eyes tired with the blaze of fairy lights, the endless crowd of folks that thronged the way, the space that seems in □ðnite, yetitis crowded to the utter-most with the miracles of automobilism, the silent witnesses to the triumph of human science and ingenuity. 'Magni□ðcent!' istheinvoluntary remark of Motor Cycling's trio, as they pass out of the cold entrance hall into the Grand Palais des Beaux Arts. Thegreat glass roof looks like a piece of delicate tracery, its steel girders being so light. It springs from the walls in a □ðneGothiccurve, and a particularly □ðneeīect is given by the bowed ends of the great hall. On either side of the building is a raised balcony of great width, extending to the outer walls of the building and passing below the gallery and the upper structure. Thesebalconies are devoted to the staging of exhibits, to restaurants, to club premises, and to oīices reserved for pressmen, and to the Manufacturers' Syndicate. Above is a gallery of about ten or twelve feet in width running around the building, and this was □ðlledwith the exhibits of accessories, parts, clothing and so forth. At the end of the longer arm of the cross is an entrance into a further hall, which contains the many exhibits connected with the alcohol industry, and down in the basement, approached by long slopes, is quite a little hive of industry. Motors are running, some driving dynamos for the manufacture of part of the electric current which was used for lighting purposes, for driving machinery and such like. Over the entrance in the gallery a magni□ðcentorchestraofat least so performers is stationed, and throughout the day it discourses the sweetest of music. Thestaircases to the galleries, at the sides of the Alcohol Exhibition, are delightfully graceful, and taken altogether, one was charmed with the tout ensemble immediately on entering the building. The □ðrstthinganEnglish visitor will undoubtedly notice and admire is the charming generaleīect of the decoration of the stands. Altogether the decoration of the stands is admirable, and it leaves one's impression of the Stanley and National Shows in this respect hopelessly out-distanced…we cannot too strongly repeat to our English makers how vitally important it is, not only to manageto draw attention to a stand, but also to attract this notice in such a way that the eye of the spectator is delighted The Exhibition consists of the display of cars of all sorts, sizes, and descriptions, of motor launches, of engines, of motor-cycles, of ordinary cycles, and of accessories and appurtenances of all kinds…TheLehaudyballoon is still expected…theaerostation section is particularly strong in models of air ships and balloons and their accessories."

MOTORCYCLES AT THE PARIS SHOW.

"**G PÉCOURT**,RUEBRUNEL,Paris,stages eight motor-bicycles, the special features about them being the Vawis carburetter, which is a very simple form of spray □ðoatfeedanda very powerful band brake worked by a Bowden wire. Themotors are all mounted on the main down tube, on the Minerva principle. **Society 'Liberator' Pantin** have several motorcycles on show; one has a Romania motor, and is □ðtted.withsingle lever control. **Societe La Francaise**, Rue de la Grande Armee, Paris, show the Diamant motor-bicycle. This has a 2hp vertical engine, held in clamps between the bracket and down tube. A Bowden back rim and front tyre brake is used. **Peugeot Freres** have a very large stand; six motor-bicycles are exhibited. The motors are mounted in two positions; one pattern being the inclined position inside the frame and the other vertical, the motor clank case connecting the down tube and bottom bracket. Theinclined motor pattern has a novelty in silencers, this being an aluminium box forming part of the motor clamp casting for the frame. **Automobiles Rochet** of Rue de Folie Régnault, Paris, show single-speed and two-speed motor-bicycles made after the Chapelle patents with a vertical 2¼hpengine held by a special bridge piece which joins the tubes permanently, and to which the crank case is bolted. An extra good □ðnishdistinguishesthe machines. **L Delchanal**, Paris, shows the Onmium motor-bicycle. with 1½hp motor □ðxedverticallyinbetween the down tube and diagonal. A simple type of spray carburetter is used, and single-lever control is □ðtted.**EVauzelle-Morel& Cie**, Paris, have something new in direct-drive motor-bicycles. This has a 2hp engine, □ðttedinaspart of the left-hand rear forks, supported between one of the back stays and compression tubes. The main engine axle passes through the hack wheel hub, and a large □ðywheelis □ðxedonthe outside. Thedrive is taken oī the valve cam shaft, and thence is taken to a gear wheel on the hub. Duplicate front forks are □ðttedandcontrol is eīected by a single lever on the top tube. The carburetter is an FN spray type; the speed is controlled by advancing or retarding the spark.**Werners**, Rue de la Grande Armee, Paris, has perhaps the □ðnestshowofmotor-bicycles in the exhibition. About

"The Stand where Werner Motorcycles are on View."

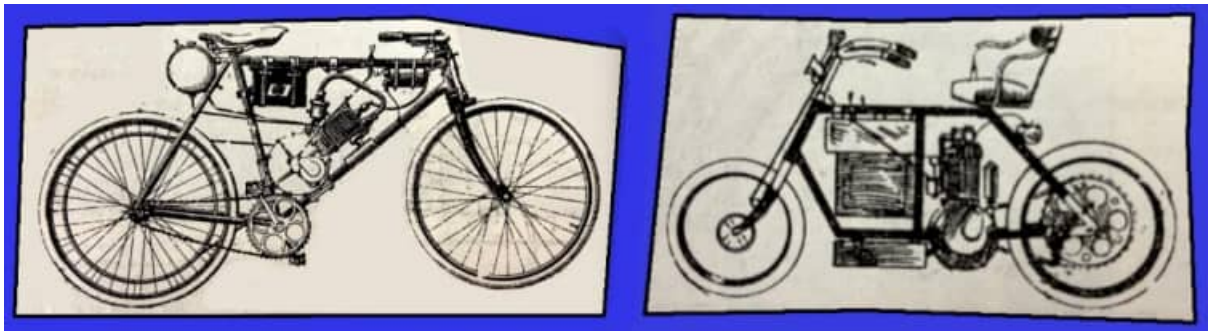
30 machines were staged, and these were equipped with all the 1902 improvements, the most notable being the carburetter adjustments for air-and throttle control. The new contact breaker is □ðttedtomostof the machines. In this the trembler blade is partly encased in an aluminium box with mica window, and the platinum contacts are easily adjustable from the outside. The machines are □ðnishedoīin many diīerent shades of enamel. Michelin tyres are □ðtted throughout. The'Auto-Velo' trophy is on show. This is a handsome bronze □ðguremountedona plush-covered pedestal, and, along with the medals gained by the □ðrmatvariousexhibitions, considerable interest is created. Thetouring machine is priced at 975 francs (about £39). **Clement & Co**, Paris motor-bicycles include the well-known feather-weight pattern and a new 2hp design, and the two-cylinder and four-cylinder racing machines. Themotor carrier tricycle is a distinct novelty. The motor □ðttedisthenew 2hp. Thecarrier is very capacious. **Lamandiere et Cie**, Levallois Perret, have a very □ðnestandwithno less than 2o of their standard machines on show. **Cottereau et Cie**, Levallois and Paris. This □ðrmshowsa rather neat motor-bicycle. Thetank is stowed away behind the saddle. Thecarburetter is the Swiss 'Souvarain', magneto ignition is sued and the transmission is by belt. **FabriqueNationale**, AvenueMalakoī, Paris, show the standard FN motor-bicycle with all the recently-introduced features. On the stand of the **Hurtu Company** of Paris, is a motor-bicycle with the engine of 1¾hp placed in an upright position in front of the bracket. Themotor is fed through a spray carburetter of the FN type and a laminated Y-shaped belt conveys the power. Theinlet valve is in a dome, held in position by a stirrup piece. Thetank is large, but the coil looks curiously small. Brakepower consists of a New Departure back-pedalling hub and a spoon brake on the front tyre. **Terrotet Cie**, Dijon, have a show of □ðvemotor-bicycles. Theyare of two patterns with loop and connected frames, the motor being placed vertically. Theengine is of 2hp and a Stenos spray carburetter is used. A special novelty on these machines is the fast and loose pulley with

belt shifter, worked by a □ðngerleverfromthe top tube. Two brakes are □ðtted;afront rim and New Departure back brake. Thefront brake lever acts also as a contact. **Griīon**, of Courbevoieand Paris, has a most interesting display of motor-bicycles. Theseinclude a standard 2hp machine, with vertical engine □ðttedbetweenthedown tube and bracket, with twisted belt drive. A Longuemare carburetter is □ðttedandapowerful belt rim brake is used for the rear wheel and lever rim brake for the front. Another pattern, with engine similarly arranged, has a gear and pedal chain drive on to a two-speed back hub. Thisis worked by a small lever on the top tube. A third pattern has the motor of 1½hp arrangedon the Minervalines. Thefamous racing motor bicycle, as used at the Gaillon Hill, Chateau Thierry,and Deauville meetings, is shown. The engine is of huge dimensions, and it is noteworthy that the cylinder is minus radiators, but there are very large ones on the heal. Thebelt used is of a special type, having eight thicknesses of leather and being pinned throughout its length with steel rivets, like a chain. Thepetrol tank is of very small size, torpedo-shaped to reduce wind resistance. **Motor-Cyclette 'Breuil'**, Avenuede la Grande Armee, Paris, has a motor of 2hp □ðttedintheframe, the crank case being connected to the tubes by special lugs. It has a round belt drive and single lever control. Ignition is by coil and accumulator, this being carried in a case supported from the top tube. Thepetrol tank is placed behind the saddle, and has a capacity of three-fourths of a gallon. Brakework is rather □ðimsy,onlyafront tyre brake being □ðttedonthemachine illustrated, but the catalogue states that an extra back rim brake is provided. Thecarburetter is a special Longuemare. Wheels 26in diameter, □ðttedwiththe French Dunlop tyres. The □ðnishisfairly good, and price comes out at the low □ðgureof£30.**Lurquin & Coudert**, Rue du Faubourg, St Antoine, Paris, have two patterns of motor-bicycles

"Lurquin & Coudert Motor-bicycle, Vertical engine, high in frame." (Right)"Lurquin & Coudert Motor-bicycle, with Vertical Engine at crank bracket."

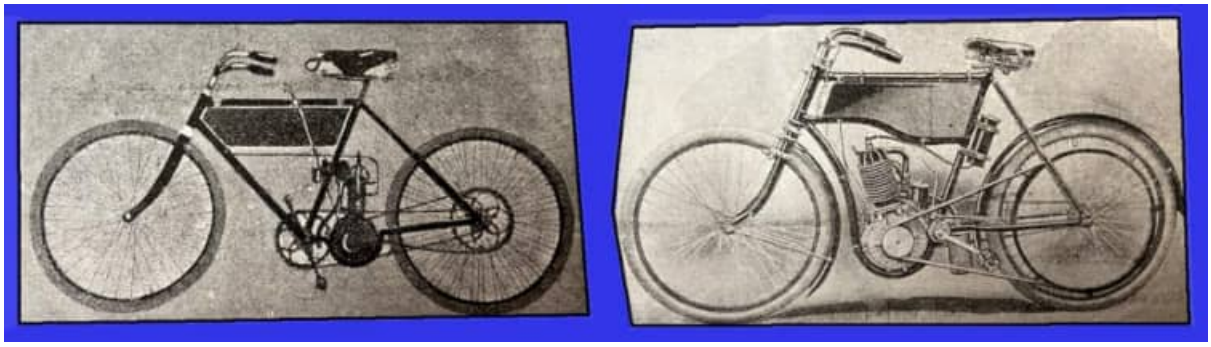
exhibited. One of these has the motor placed vertically in the frame, being clamped about the centre of the down tube. Themotor is of 1¾hp, and the drive is by a □ðatbelt. Thecarburetter and battery case are placed in the angle between the horizontal and diagonal tubes. A FN carburetter is □ðtted,andinthis pattern a lubricator and pump is attached to the top tube. The other pattern has the motor □ðttedinaspecial frame, the crank case being bolted to special lugs. Ignition is by coil and accumulator, these being placed inside the tank case compartment. The control of the speed is by means of a spark advance lever working across a kind of ratchet. Two brakes are used, namely, a Bowden back and front tyre brake. Theweight conies out at about 80lb. Themotor set can be purchased separately, and the complete machine conies out at £34. The'Stimula' auto-bicycle, made at the **Ateliers de la Grosne**, Saone-et-Loire, is made on lines that are fairly familiar in England. Themotor is of 2hp, mounted in a loop frame, with extra horizontal tube. Largeradiators are a special feature. A spray carburetter and high-tension ignition are used, and the spark-plug is placed in the centre of combustion chamber. Control of speed is eīected by a single lever placed just behind the head clip. Thebrakes are good, a back-

pedalling rim brake for rear wheel, and hand-applied rim brake for front wheel being provided. The weight of the machine is 931b, and price £35. **A Souverain Et Cie**, Avenue des Abattoirs, Geneva, exhibit a well-designed motor-bicycle, □ðtted with magneto electric ignition. The motor develops 2¼bhp, and is placed in an inclined position in a neatly designed loop frame. The drive is by a twisted hide belt, and a jockey pulley is used for tensioning, this being worked by a lever from the horizontal tube. A simple form of spray carburetter is used, this being □ðtted close to the inlet valve. The petrol tank and lubricator pump are □ðxed behind the back forks. The magneto is driven by a piece of cased-in gearing from the two-to-one shaft, and the ignition can be advanced or retarded to control the speed. A powerful back rim is □ðtted. The weight of the machine is about 90lb and the price £34. The general □ðnish and workmanship are good. **A Chauī ourier et Fils**, Rue Palikao, Paris, show the 'Royal' chain-driven motor-bicycle. This is particularly neat in design, and has a 2bhp motor with water-cooled cylinder and air-cooled head. There is a small secondary pinion arm



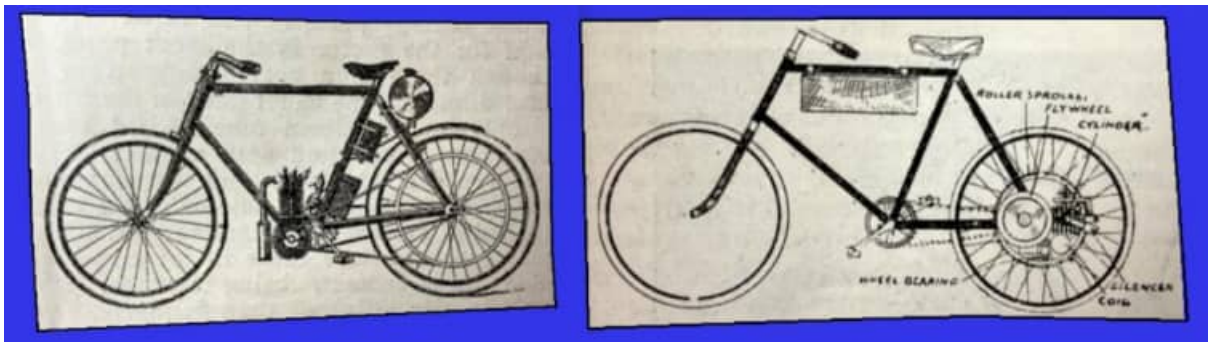
"Breuill Motor-Bicycle." (Right)"L'Auto Fauteil."

from the motor axle; this also carries a chain sprocket, and embodied in this piece of gearing is a ball-bearing friction clutch actuated by a lever from the top tube. A □ðoat-feed carburetter with throttle valve is □ðtted, and the petrol tank is of large capacity. The rear chain wheel is spoked to the rim in addition to being secured at the axle. The sparking plug is placed in the centre of the head. Weight of complete machine is 70lb, and price £40. A motor set on the above principle is also made for attachment to an ordinary roadster bicycle. **G Jouclard**, Dijon, shows several particularly neat and well-□ðnished motorbicycles. They have the merit of lightness, being only 661b weight complete. The motor develops 1½bhp, and has a bore of 63mm and stroke of 65mm [203cc]. Transmission of power is by round belt. The frame is specially designed and the motor is clamped between the bracket and tube, and placed in a vertical position. The ignition is by coil and accumulator, these being carried behind the diagonal tube. Petrol tank is placed on the rear forks. A special form of spray carburetter is used. Two brakes are □ðtted—a Bowden rim brake for back wheel, and tyre brake for front. Speed is controlled by advancing or retarding the ignition. The machine is claimed to be equal to a speed of 25mph. Price comes out at £30 only. **Heck**, Place Voltaire, Paris, shows a nicely-□ðnished and well-designed motor-bicycle known as the 'SF'. This has the motor The motor develops 1½hp at 1,500rpm. It is placed inside the frame, and attached to the down tube and diagonal by lugs. A silencer of good size is strongly supported by a lug on the crank case. The spark advance lever is also similarly arranged on a ratchet. A surface carburetter is used, and the ignition is on the usual high-tension system, the coil and accumulator being □ðxed to the diagonal and back forks. A special feature of this



"The Royal Motor-bicycle." (Right) "The Autobicyclette Stimula."

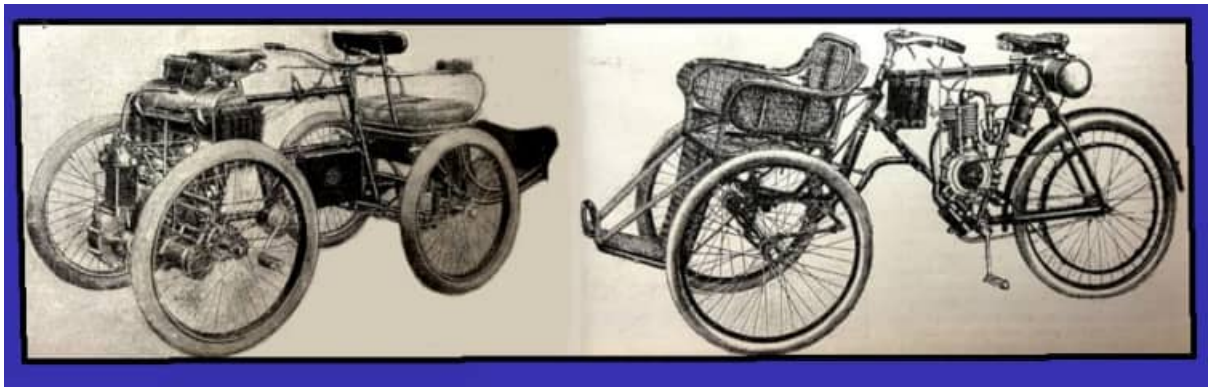
machine is the belt jockey pulley, worked by a long lever moving over a ratchet; this enables the motor to be thrown out of gear at will. **A Desgrouas**, of Chamarande, Seine-et-Oise, show an extraordinary novelty in L'Axe motor-bicycle. This machine has the motor □ðxed in a horizontal position inside the rear wheel. The motor is held on the left hand compression stay, and drives on to a large roller pinion wheel, to which the driving wheel is spoked, so that there is no hub in reality, but the large pinion is kept rigid by distance pieces, having rollers on ball-bearings. The motor can be thrown out of gear by a clutch worked from the handlebar. An outside □ðywheel is used, and a remarkable innovation is a small rotary fan to help to cool the cylinder. The ignition is by coil and accumulator, and a Longuemare carburetter is used. Control is eīected by four levers □ðxed on the handle-bar. The motor is of 2bhp. A silencer of large dimensions is used, and it is re-markable how compactly the system is arranged. **Fournier & Knopf**, Rue Lafayette, show four motor-bicycles and one 'Ayant-train', two-seater. Two of the bicycles are of American build throughout, and are named the 'Thomas' and 'Dayton'. The other machines appear to be built up with American frames and French motors and equipment. One of them has a 'Star' motor of 2½hp, placed vertically, well forward on-the down tube. A heavy outside □ðywheel is used, and a wide □ðat belt drive □ðtted. Carburetter is a simple form of spray. Only a single band brake of great power is used, this being □ðtted on the rear hub and worked from the handlebar. Pump lubrication and coil ignition are used. The other machine has a 2hp Buchet motor □ðxed vertically between bracket and down tube This has a spray carburetter, single-lever control and V-belt drive. The **Avant** tram has a vertical 4hp motor, Star make, with outside □ðywheel and water-cooled head. The motor is clamped to a single tube, which forms the main tube of frame. Drive is by a 1in gutta-percha belt. Only one brake is □ðtted on this machine. The



"The Jouclard Motor-bicycle." (Right) "L'Axe Motor-Bicycle."

Auto Fauteuil is the □ðrst two-wheeled 'car' that we have yet seen, and it is not such a freak as one would be at □ðrst inclined to consider it. The frame-work is low, the rear wheel being 23in in diameter, and the front wheel 19in. Upon the usual saddle lug is □ðxed a tubular framed seat, so that the armchair motor-cycle has really arrived! The engine is a 2¾hp De Dion air-cooled motor

with a clutch on the motor-axle sprocket. A starting handle is provided, and the motor is started, and then the rider takes his seat, and places his feet upon a pair of pedal-shaped footrests. A half-turn of the right handle throws the clutch in by means of a Bowden wire, and the machine starts oī. The motor is fed through a spray carburetter, and control is eīected through the sparking advance and throttle levers. A compression tap is also provided. The power is conveyed through a chain on to a large sprocket on the rear wheel. A band brake is applied to the front wheel The petrol tank will hold nearly a gallon, and is placed under the top tube, with the battery case below it, and coil on back stays. A very large silencer hangs below the frame. The price is £60, and the makers are **P Gauthier and Co**, Avenue Saint Gervais, Blois. It is claimed that in the event of the need for a stoppage of the machine, such as traīic,



"The Atlas De Dion Quadricycle. (Right)"Compagnie Francaise Avant-train."

the rider can throw out his clutch, and put both his feet to the ground, the engine being allowed to run. This is one of the real novelties of the Show. **ProsperLambert**, Nanterre, shows a motor-bicycle for racing purposes of huge dimensions. It has a 12hp De Dion engine, with large water-cooling tank and centrifugal pump. The drive is by a 2½in □ðatbelton to an immense pulley on the rear wheel axle. The tyres are 4in wide and wheels about 26in. Very high speed capabilities were claimed for the instrument.

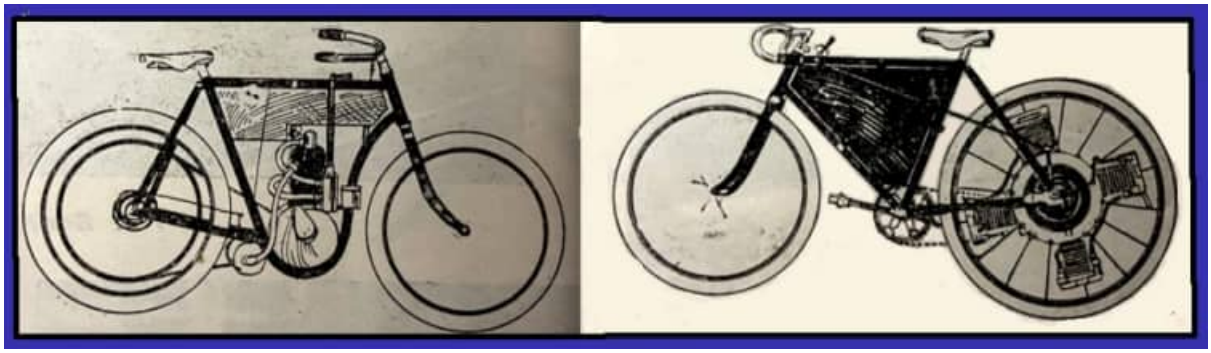
The Auto-Fauteuil stayed in production until 1922; this example is among survivors into the 21st

century. The sales brochure pointed out that the riding position would enable doctors, clergymen and the like "to uphold a certain dignity in their appearance". The Auto-Fauteuil is seen as a progenitor of the motor scooter; note the extremely early use of a centre stand.

Georgia Knap, Troyes, shows the 'Knap' gear-driving motor-bicycle in three powers, ¾, 1¼ and 2hp. The 1¼ and 2hp machines have duplicate forks and Bowden brakes □ðtted, and Dunlop tyres on Westwood rims. The light touring machine has the tanks cased over with a canvas cover. The 'Universal' two-cylinder motor-bicycle is one of the most interesting features of the motor-bicycle exhibits. It is remarkably compact and light, and the motor develops 3hp. It has combined □ðatbelt and chain drive. The motor is clamped in between the main and down tubes. A spray carburetter is used. On this stand several small motors, both air and water cooled, are shown. This machine is made by **Porteus Butler**, Passage de l'Opera, Boulevard des Italiens, Paris. The **'Atlas' Co**, Usines Prunel, Rue de Paris, Puteaux, show a standard pattern De Dion quadricycle. The motor is of 4½hp, with water-cooled head; the radiators for

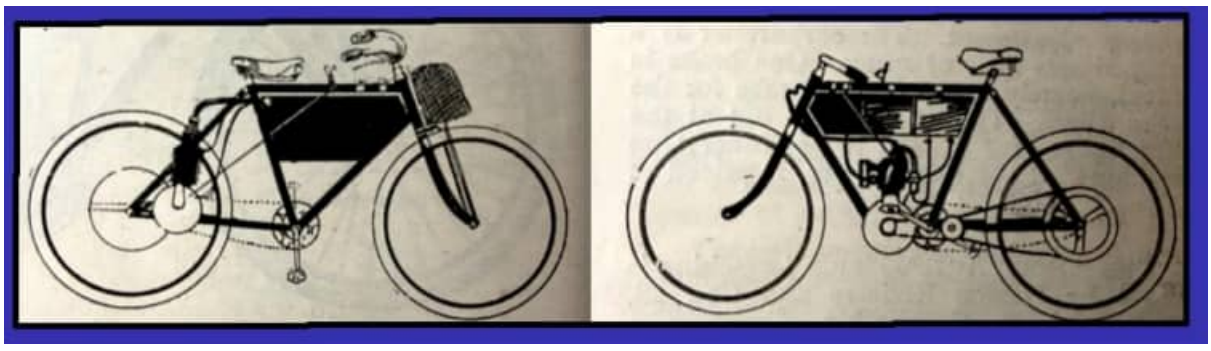
L-R: "The Bruneau." "The Peugeot Motor-bicycle." "Autocyclette Garreau."

cooling the circulation water are mounted at the ends of the tank. The controlling levers are placed well forward on the horizontal tube. The front carriage is of very comfortable design, and everything about the machine is of the □ðnest quality and □ðnish. A two-speed gear can be included in the equipment, the maximum speed obtainable is 32mph. The **Haustgen Co**, Boulevard d'Italie, Paris, make two types of machines, a 1½ and 2hp air-cooled, and a 1½ and 2hp water-cooled motor. The motor is mounted in a good position in front of the bracket. The drive is by means of a chain. The cooling tank carries about seven pints, and the carburetter is a simple type of spray, with suction feed. Control of speed is eīected by means of a lever moving over a quadrant. The capacity for petrol is rather limited at about three-quarters of a gallon with 1½ pints of lubricating oil. The price of the 1½hp machine is £36. The **'Peugeot'** motorcycle, as might he expected, is one of the best-made and □ðnished machines in the Show. It has a vertical motor of 2hp. The carburetter is a special type of Longuemare, and the motor is placed in an excellent position in front of the crank bracket. Ignition is by coil and accumulator, and power is transmitted by twisted hide belt. The control of speed is by spark advance and throttle valve levers. The petrol tank has a capacity of over a gallon, and oil. supply of one pint. The weight of machine is under 80lb, and the speed obtainable is 30mph. Price £34. The' company's works are at Valentigny. The **Griī on Co**,



“JCarreau Motor-Bicycle.” (Right)“Roue Automotrice.”

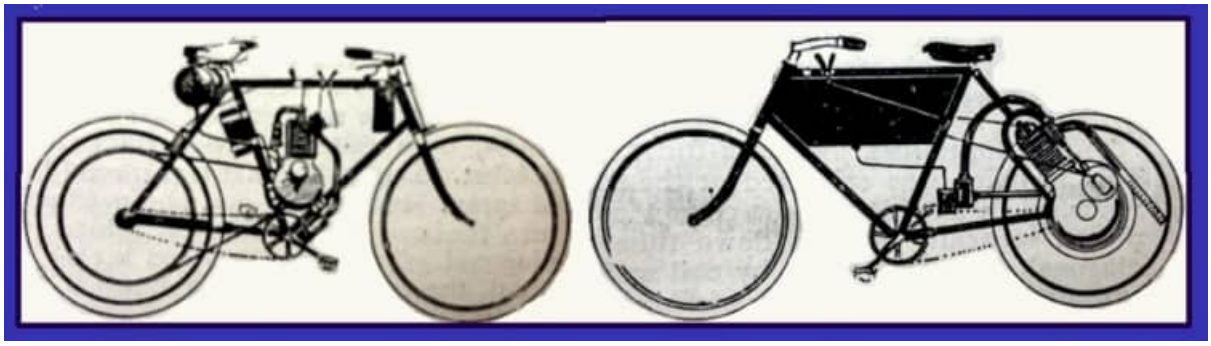
Courbevoie, show a very light touring motor-bicycle with a Clement motor □ðxedonthemain tube. Thepetrol tank is carried on a pair of duplicate front forks. Thecoil is placed behind the diagonal; and the battery slung from the horizontal tube. Thedrive is by a small-diameter hide belt with jockey pulley adjustment. A back rim and front tyre brake is □ðtted.Theweightofthe machine complete is 65lb, and the price comes out at the very low □ðgureof£30.The**CFC Avant-Train**isan attachment to convert the motor-bicycle into a two-seater. It is a well-constructed basket-work carriage, and is priced at £44 with a 1¾hp motor, and £54 with a two-cylindered 2½hpmotor. Thiswas about. one of the cheapest lines in ‘Avant trains’ in the Show. TheCFC motor-bicycle is a well. designed machine, made by the **Company Francaise**, Rue Darboy, Paris. Themotor is 1¾hp, and is □ðttedverticallybetween the main tubes. Thepetrol supply tank is □ðxedonthebackforks. Ignition is by coil and accumulator, and drive by means of a round hide belt, with jockey-pulley adjustment. Thecarburetter is a very simple type of spray. One brake is □ðtted,namely,astrong rim brake for the rear wheel. Theprice comes out at the low □ðgureof£30.Atwo-cylinder machine of 2½hp is priced at £42. The‘Roue Autoniotrice’ machine is made by **Gaston Rivierre and Co**, Boulevard de Courbevoie, Courbevoie, Seine. This machine is of remarkable design, having a four-cylinder motor, in which the cylinders alone rotate with the wheel. Thusthere is no chain or gearing,and the drive is quite direct. Thewhole of the regulation is eīected by one lever. Theignition is on the high-tension system; a four-part contact breaker causes each cylinder to □ðreconsecutively.**JCarreau**, Avenue des Ternes, Paris, shows a motor-bicycle in which the motor is placed vertically in a loop frame. Thisis known as the No 2 Model, and can be supplied with a De Dion or Aster motor of 1¾or 2¾hp with a water-cooled head. A spray carburetter



“The Knap.” (Right)“The Haustegen.”

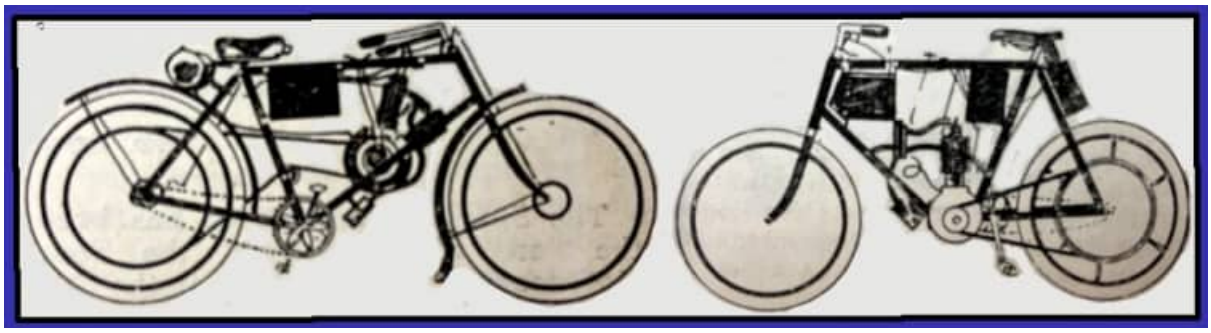
is used, and high-tension ignition is □ðtted.Driveis by means of a □ðatbelt.Thecarburetter is of the □ðoat-feedspraytype.Two brakes are supplied, viz, a back-pedalling band brake and a front rim brake. Theprice of the smallest power, 1½hp, machine, is £30, and the higher powered machine, which can be had with or without pedals, is £44. TheBruneau motorcyclette is

constructed by **P Bruneau and Co á Tours** (Indre-et-Loire). It has a vertically-placed motor of 2hp. The frame is of a good rigid design, with extra horizontal tube. The carburetter is of the spray type. The transmission of power is eīected by a chain, and a clutch worked by a lever is □ðttedtothemotor shaft. Ignition is by coil and accumulator. Duplicate front forks are □ðtted, and also two rim brakes. The petrol tank carries about 1¾ gallons of petrol



"The 'Bonhomme'." (Right) "The Vauzelle Morel."

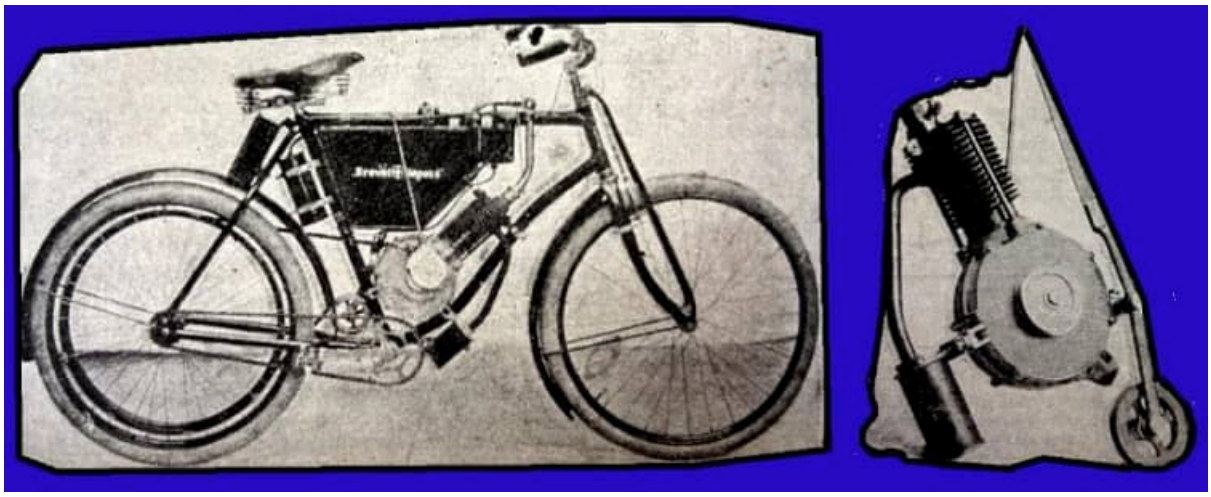
and 1¾ pints of lubricating oil. A large silencer is □ðtted, and general □ðnish is excellent. Price £38. The 'Roue Motrice' machine is the invention of **G Boivin**, Rue Girardon, Paris. It bears a striking likeness to the English 'Singer' motor-bicycle, inasmuch as the motor, carburetter, etc, are contained within the wheel. The axle is driven by means of reduction gearing from the motor shaft. Two patterns are made, one with the motor in the front wheel, and the other in the rear wheel. The controlling of the motor speed is eīected by two levers mounted on the handlebar, and connecting with the motor through a hollow axle. **L'Autocycle Garreau**, Rue Lemarois, Paris, show a remarkably light and compact compact motor-bicycle. The motor develops 1¼hp and only weighs about 10lb. The □ðrm claim that this will do 45km in the hour—over 30 miles—and climb hills of 1 in 8 or 9 without use of the pedals. The petrol tank, carburetter, coil



"The Gladiator." (Right) "The Lesprillier' Motor-bicycle."

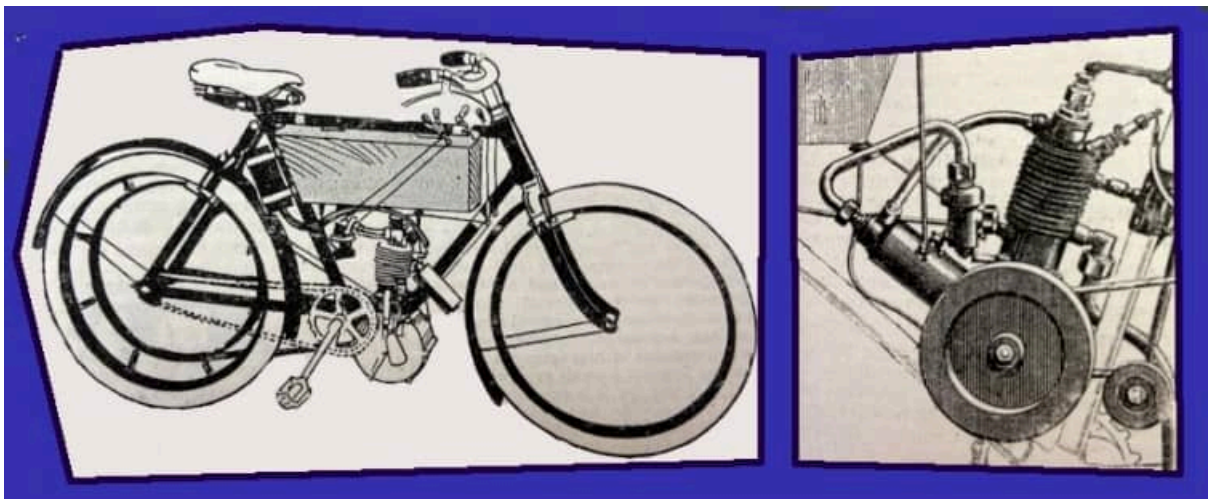
and accumulator are contained in a case supported from the horizontal tube. The capacity of the petrol tank is three-quarters of a gallon, suīicient for a run of 90 miles. The transmission is by means of a twisted hide belt, and control of speed by advance of spark. One band brake on the rear wheel hub is □ðtted. Weight of the machine complete is 541b, and the price only £24. The **Gladiator Co**, Paris, showed a 3hp. twin-cylinder motor-bicycle. The motor is of the Clement type, and drives by means of a triangular-section belt on to the rear wheel. The petrol tank is □ðxed behind the saddle and supplies the motor through a spray carburetter. Two powerful band brakes are used, one being □ðtted to each wheel hub. Ignition is by means of coil and accumulator, these being carried in a case supported from the horizontal tube. The wheel base of the machine is of good length, and the general □ðnish of the machine is excellent. The

weight comes out well under 100lb. **Laforge & Palmantier Freres**, Avenue de Wagram, Paris, make a speciality of a 2hp motor-bicycle



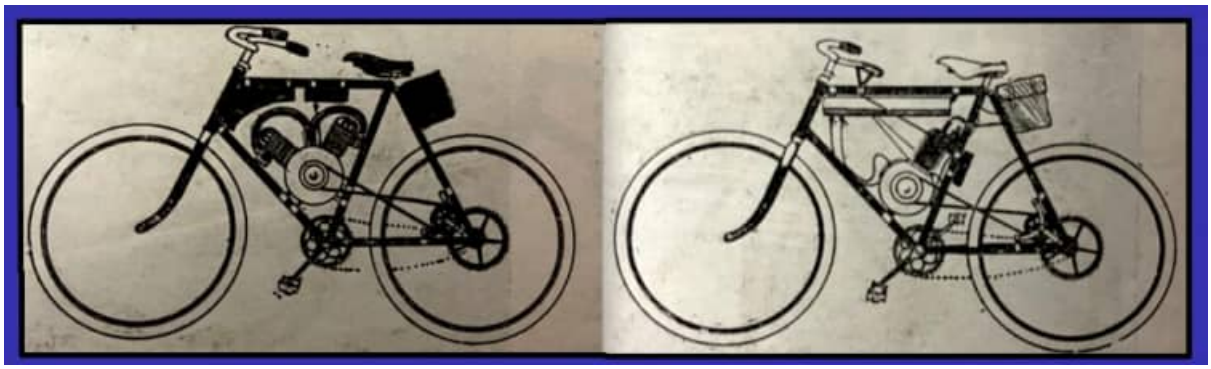
"The SF motor-bicycle made by Heck." (Right) "The SF Motor, showing jockey pulley."

possessing some special features. The motor is placed vertically in front of the crank bracket and is supported in a very rigid manner, the crank case and cylinder being bolted to a circular bridge piece at the end of the main tube, and also supported by a short extension piece at the bracket. The carburetter is a special form of spray. Ignition is by coil and accumulator, the coil being clipped behind the diagonal. Two very good rim brakes are □ðtted, the rear one being a Bowden, and the front a pull-up lever. A pump lubrication system is used, and the speed of motor is controlled by spark advance and throttle. Drive is by means of a □ðat belt. Price £34. The **Lesprillier** motor-bicycle has a 2¾hp motor placed vertically between the main tube and, diagonal. It drives by means of a round belt. The carburetter is a spray type fed from a petrol tank placed in the fore part of the machine. The coil for ignition is placed in front of the diagonal, and the accumulator is strapped on the back forks. Regulation of speed is eīected by spark advance and throttle valve. The weight comes out at about 100lb, and price £37. The depot for this machine is 22, Avenue d'Italie, Paris. The 'Bonhomme' motor-bicycle has a 2hp motor placed vertically between down tube and diagonal. The ignition is by coil and an accumulator. Lubrication is eīected by means of a small force pump. Either a Longuemare or Roubeau carburetter can



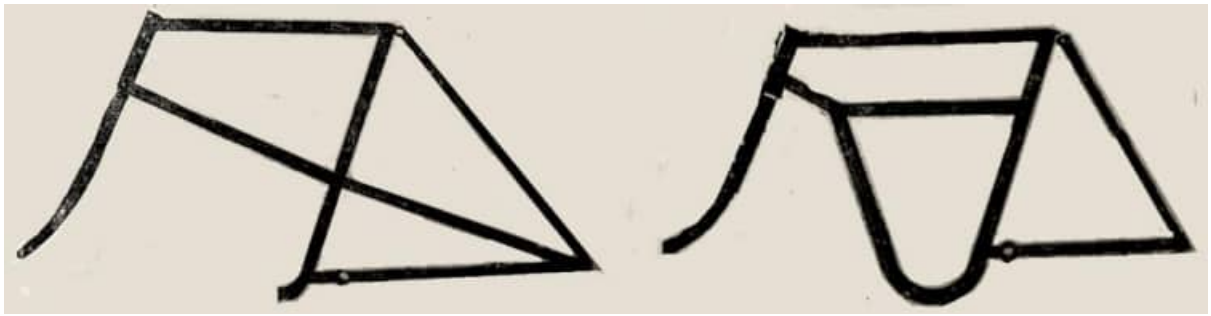
"Laforge & Palmantier." (Right) "Le Bichrone 2 Cycle Motor."

be □ðtted,the□ðrstnamedrunningon alcohol if desired. Thepetrol tank has a capacity for two litres, suīicient for 80 to 90 miles running. Thedrive is by means of a round leather belt. Two brakes are □ðtted,atyrebrake for the front wheel and a Bowden rim for the back wheel. Theprice is £34, and makers are **JBonhomme et Cie**, Rue St Marc, Paris. Theremarkable little **'Bichrone'** motor was shown at work on one of the underground exhibits at the Paris Show. It works on the two-cycle principle, and □ðreseveryrevolution.Thespray carburetter supplies gas to a small cylinder connecting with the crank case, and on the up stroke of the piston a supply of gas is drawn into the crank case through a valve, and compressed when the piston descends, which is also the □ðringstroke.Whenthepiston reaches a certain point in its stroke, a port is opened in the cylinder, and the compressed gas rushes in, and at the same time forces out the exhaust through another port in the lower part of the cylinder. It has an external □ðywheel, with the belt pulley on the inner face. Themotor □ðtsneatlyintothe angle formed between the diagonal and down tubes of the bicycle, and it can be adapted to any roadster machine. The motor is made in two sizes, 1½ and 2¼hp,and is priced at £13 and £15 respectively. The Paris agency for 'Le Bichrone' is 28, Rue Demours."



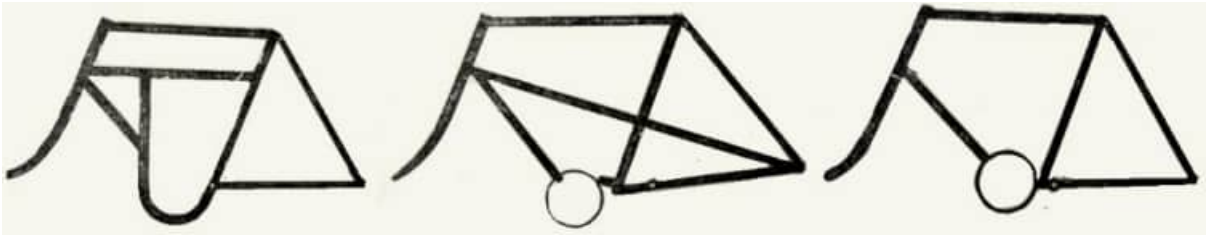
"L'Universal Twin-cylinder Motor-Bicycle." (Right)"L'Universal."

"THE VERTICALPOSITIONforthe motor was by far the one most generally adopted, and as for frames it might safely he said that there were no two exactly alike. Therewere two main systems of motor attachments for the vertical position, one in which the main down tube is 'looped', and the motor is clamped from the crank case at three or four points, and the other one in which the down tube and bracket connection is formed by the crank case of the motor. Takingas a good type of this principle the 'Werner' and Princeps machines, an extra horizontal tube connects the down tube and diagonal at a point about midway between them: this gives the necessary rigidity, and relieves the lower tube connections of considerable strain. This principle is also adopted on some of the 'loop' frames, notably the Jesmond,Clarendon, and Bat machines. In the Bradbury and R&Pmachines the crank case of the motor forms a permanent



"The Davison." (Right)"The Clarendon."

connection between crank bracket and down tubes, the tubes being brazed into lugs on the crank case. The Raleigh machine has a special frame, a combined cross and diamond pattern, in fact, which should have great lateral stiīness. The motor is placed well forward of the crank bracket system, which also acts as a countershaft for the combined chain and belt drive. The 'Davison' machine has some points of resemblance to the Raleigh, but is minus the extra down tube: this machine has also a magneto ignition and belt drive with jockey pulley adjustment. The special high-powered Royal En□ðeldhasanexceedingly strong frame triangulated at the bracket. The only machines having the motor built in as part of the diagonal strut were the 'Lamaudiere' and the 'Royal'. This would appear to he an excellent position as far as strength is concerned, but some riders might object on the score of the motor being unpleasantly near the legs when riding. The Ormonde machines, of course, adopt the rear position behind the diagonal; the position is accompanied by the lengthening of the rear triangle of the frame. A considerable number of machines had duplicate front forks □ðtted, and it was noteworthy that the fork crowns throughout all the exhibits looked quite strong enough. The spring fork as

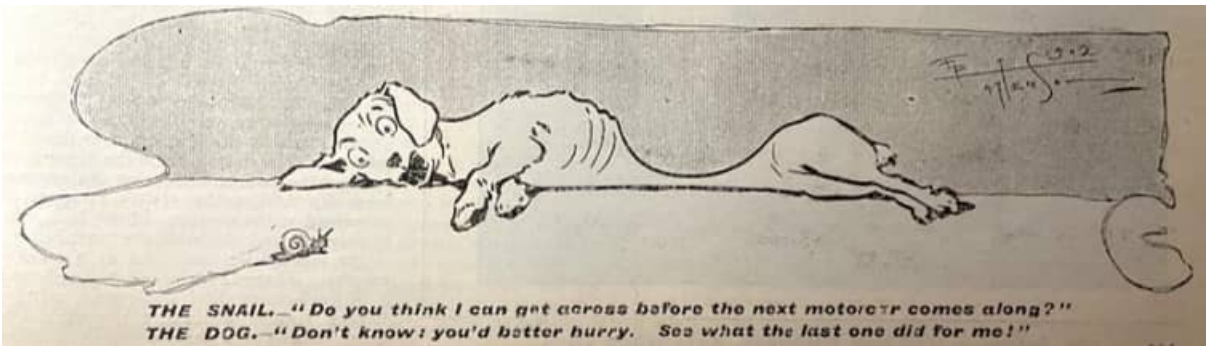


L-R: "The Jesmond." "The Raleigh." "The R&P."

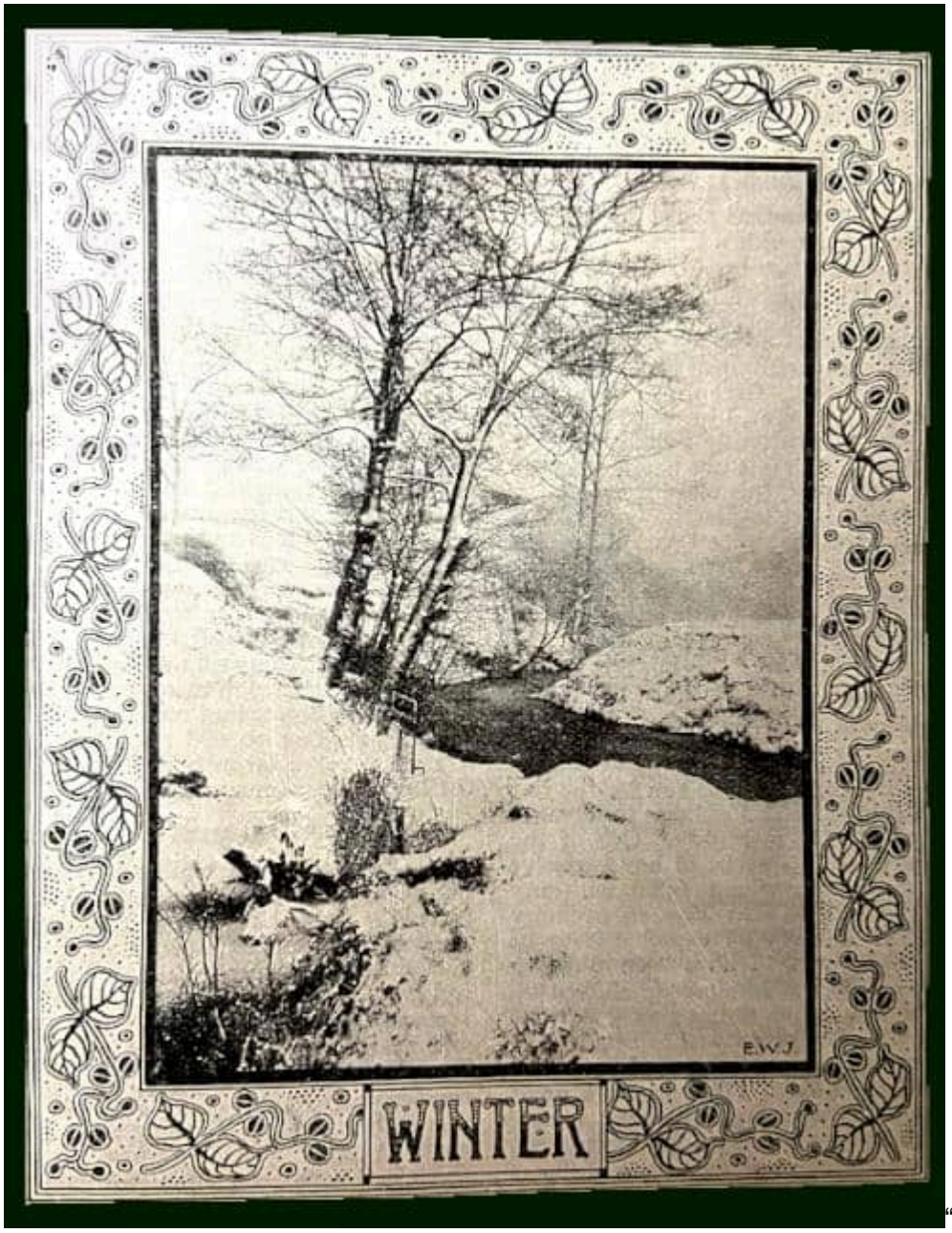
applied to motor-bicycles was conspicuous by its absence, the 'Celeripede' being about the only one, and there certainly seems a good opening for the spring fork, as most riders will admit that the fore-carriage of a motor-bicycle feels unpleasantly rigid at times. As to variable speed gears, these required a lot of □ðnding: about the only one □ðttedupin a practical form was the Clement-Garrard chain driver—this is a neat adaption of the Crypto principle. The Whippet Company showed a motor-bicycle □ðttedwiththeir two-speed pedalling gear for assisting the machine up very stiī hills. A variable speed gear that might have a future before it was the one shown on Messrs Gamage's stand at the Stanley. Of tricycles and quads there were few to be seen, with the exception of the Peugeot, which had any novel features. The Peugeot quad has a special starting handle on the motor, and is minus pedals, and is altogether a good representative of an up-to-date quadricycle. The motor is of 4½hp. Of motor tandem bicycles, perhaps, the Phoenix called for the most comment. It is □ðttedwithaMinerva 2½hp motor, belt driven, and weighs complete with specially large tanks 140lb. "

"HE WASAN OLD MAN; bent were his shoulders, and he wore a snowy beard. He looked very tired and I took compassion on him, as he staggered across the inn yard and leant his heavy, antiquated bicycle against the wall. 'Sir,' I said presently, 'you are an old man to ride a bicycle. I fear it tries your strength somewhat. It does, indeed it does, he answered. 'I should have thought a motor bicycle would be better suited to a man of your years, sir,' I ventured. .So they say,' he replied. 'But do you really think I could manage it? I have heard they are plaguey things.' 'You could learn.' 'I am old to learn, young man—old to learn!' 'One is never too old, sir,' I answered, and besides they are wonderfully simpli□ðednowadays. Time has worked wonders in that direction, I do assure you.' He started as one who had received a sudden shock, and I saw he was greatly agitated. 'Calm yourself, sir, I pray. Can I get you some refreshment?' 'Thank you, no.' he said abruptly, 'I must be oī. One word you uttered reminded me that I must neverrest.' 'Would you like to try my motor-bicycle?' I ventured. 'Ah, that I would!' he said with evident

enthusiasm. I led him to the outhouse and brought out my Werner—newat Showtime. 'It looks fast,' he said, rubbing his old, bony hands together as he contemplated its appearance. And it is fast," I replied. ThenI told him how to manipulate the levers, and helped him into the saddle. 'Do you think I shall be all right?' he asked, with a strange tremor in his voice. 'Yes,'I replied, 'go slowly at □ðrstandgradually spark up as you gain con□ðdence."Myson, you speak like a sage; but tell me, do you trust me? Men say I am a thief.' 'Go to,' I said laughingly. 'I warrant after a trial of this motorcycle you'll have none of your paltry push bikes.' 'Think you so,' he answered, 'then let me begone.'I pushed him oī vigorously,and the 'tick, tick, tick' of the motor commenced. He swayed at □ðrst,andthen,righting himself, sped down the road straight as a dart. I watched him as he □ðew,hislongbeard streaming in the wind, and as I looked I saw him waving something I had not observed before—it was a scythe. Faster he went towards the setting sun, his bare head silhouetted against the red-lit sky; and there above the dipping disc, in a halo of light, I saw emblazoned the □ðgures'1903'.Onwardherode. I turned away into the inn yard, and there stood the desolate, the obsolete bicycle. With a shiver I woke, and Time, the thief, had robbed me of one hour."


THE SNAIL.—"Do you think I can get across before the next motorcar comes along?"
THE DOG. "Don't know: you'd better hurry. See what the last one did for me!"
Here's a jovial cartoon from the Christmas issue…hohoho.

"CHRISTMASGREETINGS!Thisis Motor Cycling's very □ðrstChristmas, and even though the paper has run its course for well nigh a year, it seems rather sudden—so quickly has the time □ðownto□ðndoneselfextending Christmas greetings from the editorial chair. But if the □ðightof time renders this happy proceeding apparently premature, what are we to say of the extent of our progress in so short a space as nine months, when we realise, as we do with, in□ðnite pleasure, that the greetingswhich we now most heartily extend go forth to more than twenty thousand readers?It is surely an accomplishment, of which we may be pardonably proud, to have gathered about us such a vast number of friends. And it is with the greatest pleasure that we on the occasion of the □ðrstChristmasofthe existence in print and in being of Motor Cycling', oīer to our many thousands of readers the world over THECOMPLIMENTSOFTHESEASON."



"With the Best of Yuletide Wishes to our Thousands of Readers."

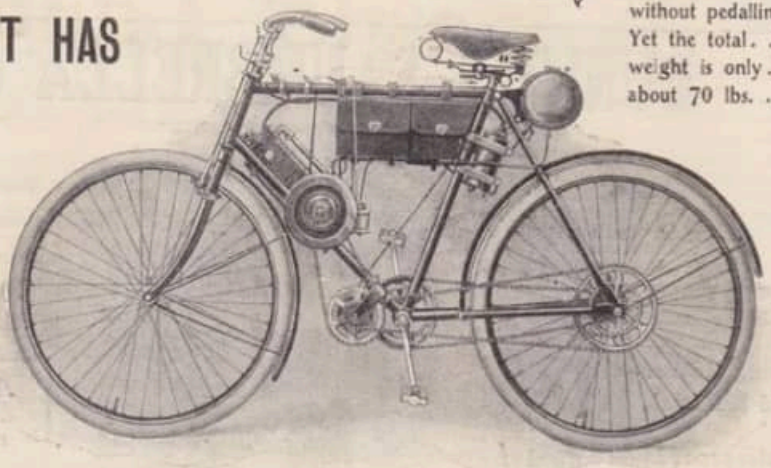
THIS SELECTION OF CLASSIFIED ADS, dating from November 1902, gives a taste of the market: "1901 Werner, English built, 26in frame, £40…Coventry Humber, 2hp, chain driven, £45…190? Rex, 2hp, splendid hill climber, two Lincolna belts, spare parts, £35…Phoenix, 1902, 1½hp, complete, £25 lowest, seen and tried by appointment…Motor-bike, □ðttedwithBrown'smotor, BSA □ðttings,sacri□ðce,£1710s…Holdenmotorcycle, as new, only ridden few hundred miles, four-cylinder, water-cooled, 3¼hp, faultless, buying car, will demonstrate, no oīers, £55…Excelsior, 1½hp, all latest improvements, ridden very little, £31…2hpSimms motor-bicycle, magneto ignition, Progressspecial frame, back-pedalling and front rim brakes, Johnstone carburetter, special petrol tanks (200 miles), Dunlop motor tyres, special silencer, etc, complete machine new, run about 100 miles, complete set of spare parts, Forman spray carburetter thrown in, £40 or nearest oīer, photo free…Primusmotorcycle, new this season, complete with spares, horn, etc, 18 guineas; trial allowed…Minerva 1½, nearly new, gold lined, extra □ðnish,fastmachine,horn, lap, tools, two rim brakes, £32. Motor spirit, accumulators

charged…Caswell's Imperial 1½hp motorcycle engine, including silencer, sparking-plug, □ðoat spray carburetter, battery and induction coil, petrol tank and oil reservoir, all necessary levers, wires, driving belt and rim, £9…Brown motor-bicycle with BSA□ðttings, £15…Hewetson 1¾hp, magneto ignition, spare tank, run about 600 miles, all accessories, £36; Greatest bargain ever oīered! Brand new Werner, rear driver, special extra powerful engine, guaranteed complete and perfect in every detail, superb special English □ðnished frame, and every other modern improvement, accept £37.10s; Werner's price £50…Lady's Ivel motor-bicycle 1½ Minerva, Clincher tyres, as new, genuine machine, bargain, £28, Mrs Kennard, The Barn, Market Harboro' [I have included the seller's name as Mrs Kennard was a high-pro□ðle pioneer of motor cycling for women who features elsewhere in this timeline—Ed]. Below these ads was a public health warning, "The Following are Trade Advertisements." Among them was some engaging Edwardian copywriting: "ADVICE free again; but don't despise it because it's free. It may save you pounds, Let's hear, you say? Below. Well, here 'tis! Go to the shows if possible. Splendid things, very educating (to some) look around etc. Read below. BUT don't, don't □ðx up until you have seen or written Wilbee, Rickmansworth, for prices, cash, instalment, exchange. Understand? Stamp." So have bikes become more expensive in real terms? On-line conversion guides indicate that £1 in 1900 equates to about £100 today. On the other hand the average labourer's wage in 1900 was about £100 compared with about £25,000 today. So a £50 bike in 1902 would equate some to £12,000 today.

And here's a selection of the display ads that were tempting enthusiasts that year:

A MOTOR BIKE IS ONLY HALF A MOTOR BIKE WHEN IT HAS ONLY ONE GEAR.

THE CLÉMENT-GARRARD TWO-SPEED GEAR MOTOR BIKE.



Takes ANY rider up ANY hill . . . without pedalling. Yet the total . . . weight is only . . about 70 lbs. . .

STAND 167, STANLEY SHOW.

It is clear that if a single gear bike is such that it will take a 15 stone rider up a 1 in 9 hill without pedalling, then that motor must be capable of doing 45 miles per hour on the flat! Now, 45 miles per hour on the flat calls for about 3 h.p., and most of these weigh about 1½ cwt., and even then they sometimes want pushing up! "Ahem!"

THE GARRARD MFG. CO., LTD.,
Ryland Street, BIRMINGHAM.

"PLAXINE" POST FREE, 1/9.

DESTROYS GREASE.

Slipping **BELTS,**
Greasy **BRAKES,**
Slimy **CLUTCHES**

INSTANTLY CURED by destroying the cause—GREASE.

G. T. RICHES & Co., 4, GRAY'S INN RD., LONDON, W.C.

ANTI-RUSTINE

Regd.

"A SHIELD AGAINST RUST" for Bicycles, Motors, Machinery, Electro-Ware, Tools, Cutlery, etc. It fills the pores of the metal, and forms a thin film that is Proof against Dampness, Snow, Rain, or the Fumes of Acid. In Tins, 1/-, 1/6 and 2/6; postage, 2d., 2½d. and 4d. Special Quotations for large quantities. Manufactured by M. P. McCoy, Ld, Phœnix Place, Mt. Pleasant, London.w.c.

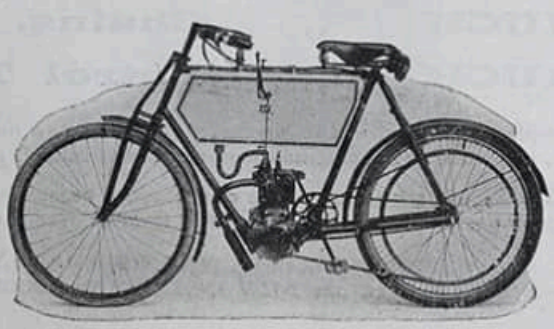
When ordering please mention this paper.

THE BEST IS CHEAPER.

The REX

KING OF MOTOR BICYCLES.

Not a foreign motor, but a genuine British engine of 2 h.p. is one of the secrets of the success of the "Rex."



On July 19th the 2 h.p. "Rex" beat the 2 mile grass track record, time 3m. 55s., also the 5 mile record, time 9m. 59s.

Price 48 guineas.

THE REX MOTOR MFG. CO., Ltd., COVENTRY.

London Agents: THE MOTOR CAR CO., 168, Shaftesbury Avenue, London.

Compare this frame with other loop frames. We shall exhibit 1¾ h.p., 2¼ h.p., 2½ h.p. with

WATER COOLED HEAD.

and invite your inspection at the

NATIONAL SHOW.

We fit a speed regulator to our 2¼ h.p. and 2½ h.p. motors, which regulates the speed in traffic.

JESMOND MOTOR.

Simplicity!
Efficiency!

National.
Stand 119.

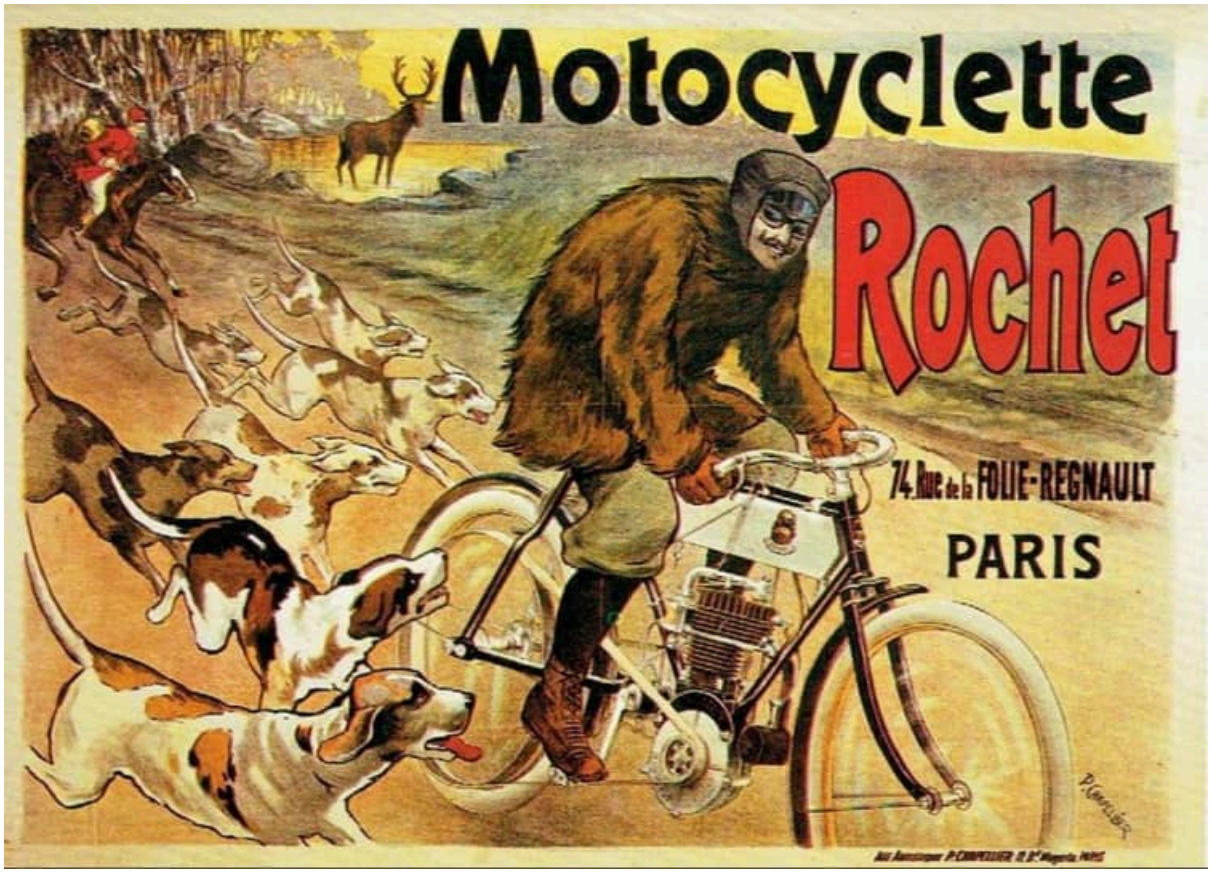
(Registered design.)

JESMOND CYCLE Co., Ltd.,

Works: Haymarket. Depot: Palace Buildings. Wholesale Dept.: Cragg's Yard.

NEWCASTLE-ON-TYNE.

A4


Motocyclette
Rochet
74, Rue de la FOLIE-REGNAULT
PARIS

Motor Cycling Union of Ireland.

GRAND
Motor Cycling Tournament,
AT
ASHTOWN TRACK (Two Laps to Mile.),
ON
Saturday, 18th October, 1902,
AT 2 O'CLOCK, P.M.

EVENTS:
PETROL CONSUMPTION TRIAL,
(Confined to Motor Bicycles)

In which each rider will be allowed a specified quantity of petrol. The rider covering the greatest distance will be adjudged the winner. Minimum speed, 15 miles per hour.

10 MILES MOTOR BICYCLE H'CAP.
(To be run in heats if necessary).

1 MILE MOTOR BICYCLE SCRATCH.
(To be run in Heats if necessary)

Entry Fee, 1s. for each event.

Entries close Thursday morning, 16th October, 1902.

Competitors will be required to state the following particulars when sending in their entries) (which must be in writing) :—Weight of rider, bore and stroke of engine, make of machine and end engine, Nominal horse power as stated by makers.

Machines must be full roadsters, complete with mudguards etc.

Further particulars may be had from the Secretary, Mr. J. C. PERCY, 11 Lower Sackville-street.

ALL THE EVENTS ARE OPEN TO AMATEURS.

Admission 6d. Reserved Enclosure 1s.

THE De LONG MOTOCYCLE

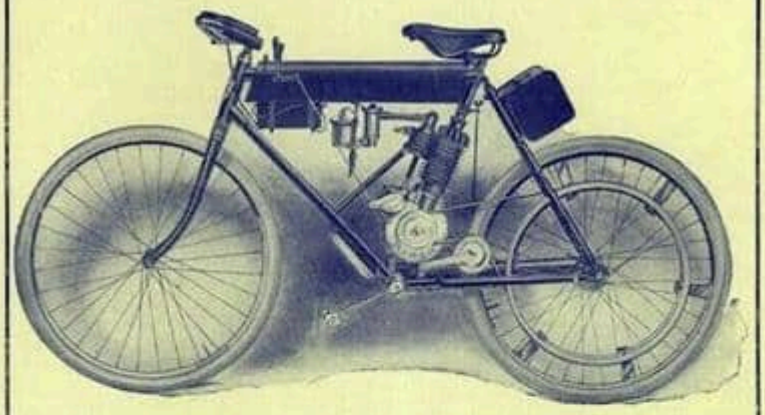
Write for our 1902 Agency Proposition.

Catalogues on application.

Notice the absence of tanks, cases, bags and belts.

Industrial Machine Co.

PHOENIX, N. Y., U. S. A.



MARSH MOTOR CYCLE

1902 Model **Price, $175**

OUR guarantee is the strongest ever given by any manufacturer (see next page). **WE KNOW** that our Motor Cycles are all right. Simplicity and Perfection are what you buy when you purchase a "Marsh." If you want our catalog, write for it. If you wish an agency, apply for it. Better be quick.

MOTOR CYCLE MFG. CO.

BROCKTON, MASS.

THE 1902 "MERKEL" MOTOR CYCLE

·MERKEL·

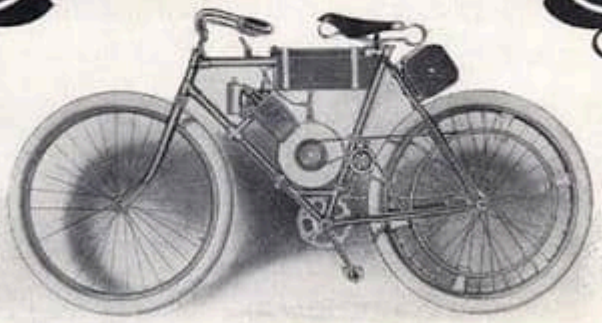
·MERKEL·

WE GUARANTEE

The Reliability and Other Qualities SATISFACTORY

Single Lever Control
Ball Bearing Idler
Steel Rear Pulley
2¼ H. P. Motor
Very Quiet

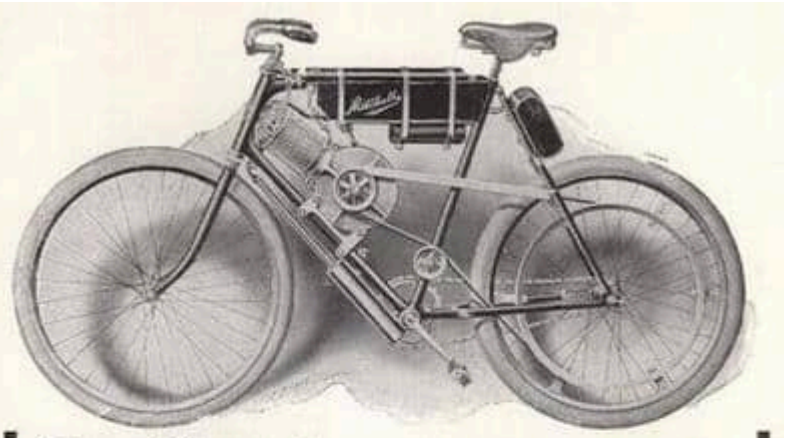
Special Inducements to Prospective Agents



ADDRESS

MERKEL MFG. CO., MILWAUKEE, WIS.

DEPARTMENT T



The Mitchell Motorcycle

has, by merit, earned the

REPUTATION

of being the BEST DESIGNED, FINEST FINISHED and MOST SPEEDY. It wins its way into popularity because it gives satisfaction.

AGENTS TAKE NOTICE

Stock will be carried in both Boston and New York for the convenience of Eastern trade. We appoint but one agent in a city, but that one must be a hustler. Are you? If so, write to-day, or the other man will get in ahead of you, and then you will have to look out for real competition. Address

WISCONSIN WHEEL WORKS CO.

12 MITCHELL STREET RACINE, WIS.

OR

H. VAN ARSDALE
20 BROAD STREET
NEW YORK CITY
Gen. Agt. N. Y., Pa., N. J., Del., and D. C.

GEO. S. ATWATER
No. 8 MERRIMAC STREET
BOSTON, MASS.
Gen. Agt. New England

ANOTHER VICTORY! At Edmonton Sports on Saturday, May 10th.

3 mile Motorcycle Race won by an amateur on

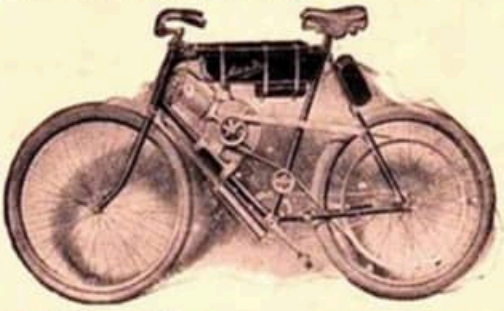
MITCHELL MOTOR CYCLE

The MITCHELL MOTORCYCLE

HAS NEVER BEEN BEATEN.

In 6 events entered for, the MITCHELL MOTORCYCLE succeeded in beating all competitors, and won each race easily.

Runs 100 Miles on 1 charge of 1 gal. of Petrol.



Delivery in 5 days.

Price :

£45 0 0.

DAVIS, ALLEN & Co., 5, 6 and 7, Singer Street (between Tabernacle St. and Old St., near City Rd.), London, E.C.

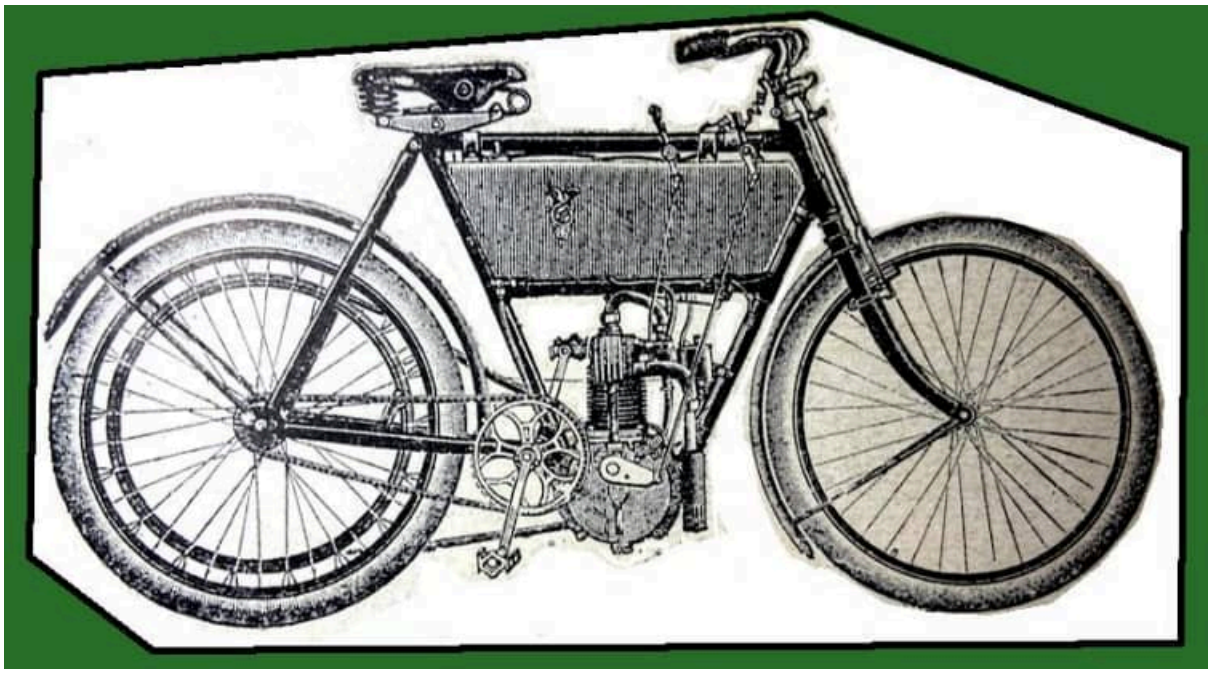
Midland Branch—Guildhall Buildings, Navigation Street, Birmingham.

KINDLY MENTION "MOTOR CYCLING" WHEN CORRESPONDING WITH ADVERTISERS.

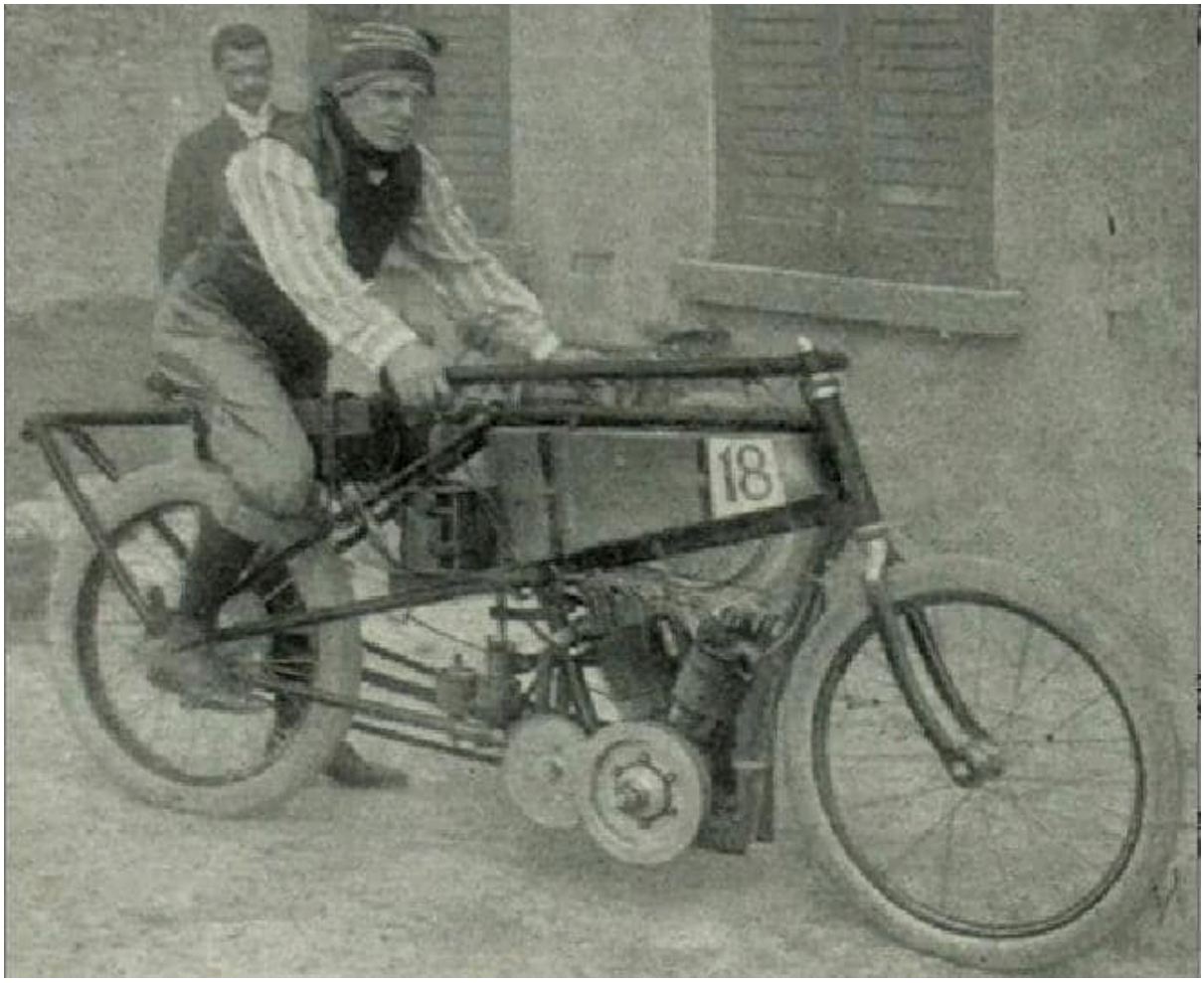
Share this:

1903

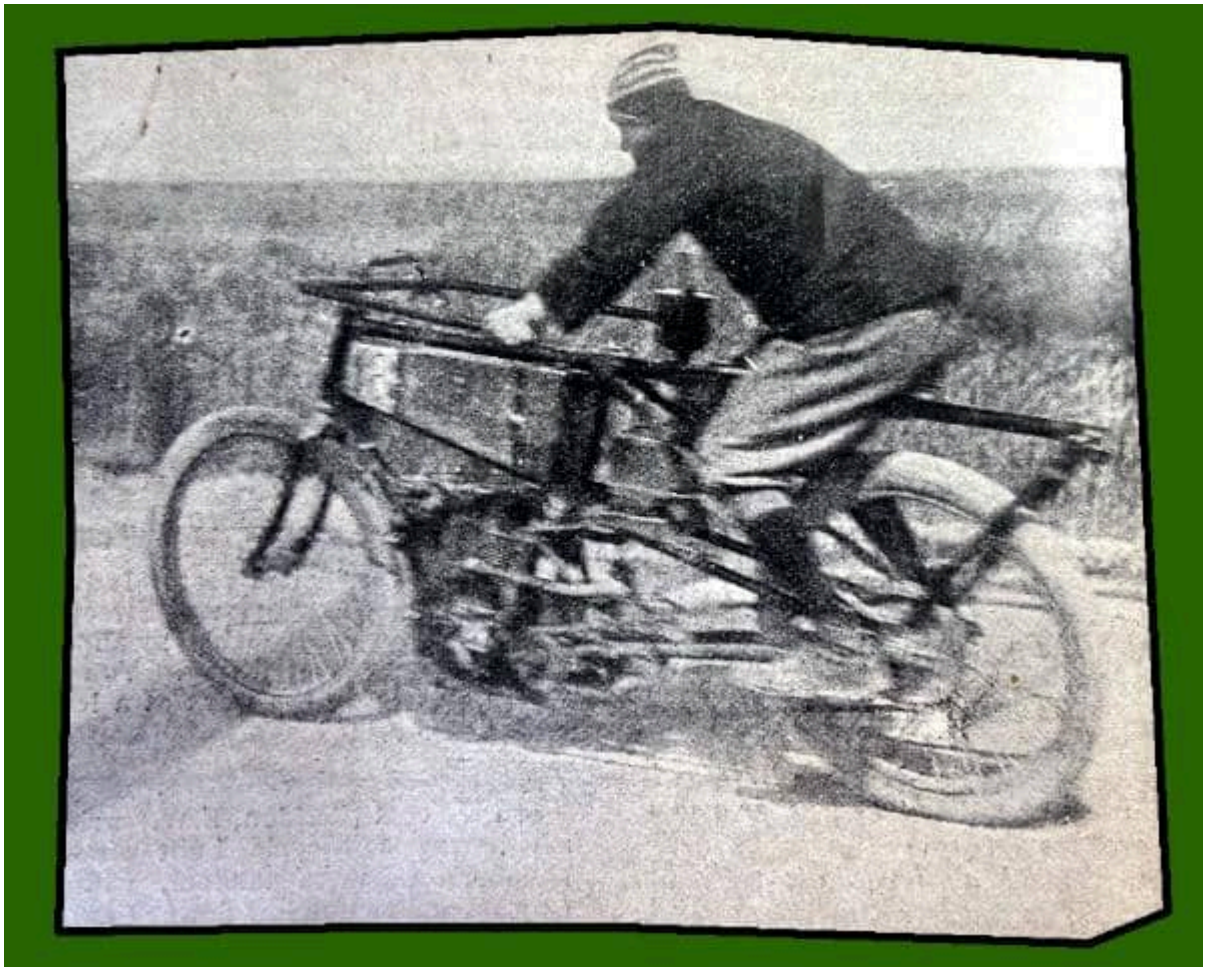
“THE STAR CYCLE CO of Wolverhampton, have gone very largely into the motor cycle industry. For some time past they have been engaged in the manufacture of a specially designed, high-powered machine, but at present this machine it not ready, so, believing that there is a good demand for a smaller type of machine, they have been experimenting with a French machine known on the Continent as the Griīon. To the general reader this motor-bicycle is, perhaps, little known, but to those sportsmen who have carefully followed the history of the motor-bicycle, its name must be very familiar. We need only mention a few of the competitions it took such a successful part in, Gaillon—Chateau—Thiery and others. As will be seen by the illustration, the construction of the machine is of the accepted type, the engine being built vertically into the frame, exactly similar to more expensive machines. The engine is 2hp, and is fed by the well-known and well-tried Longuemare carburetter. The drive is by means of a twisted belt of a double ply character, being exceptionally strong but very pliable. Everything, down to the smallest detail, is of the very best.”



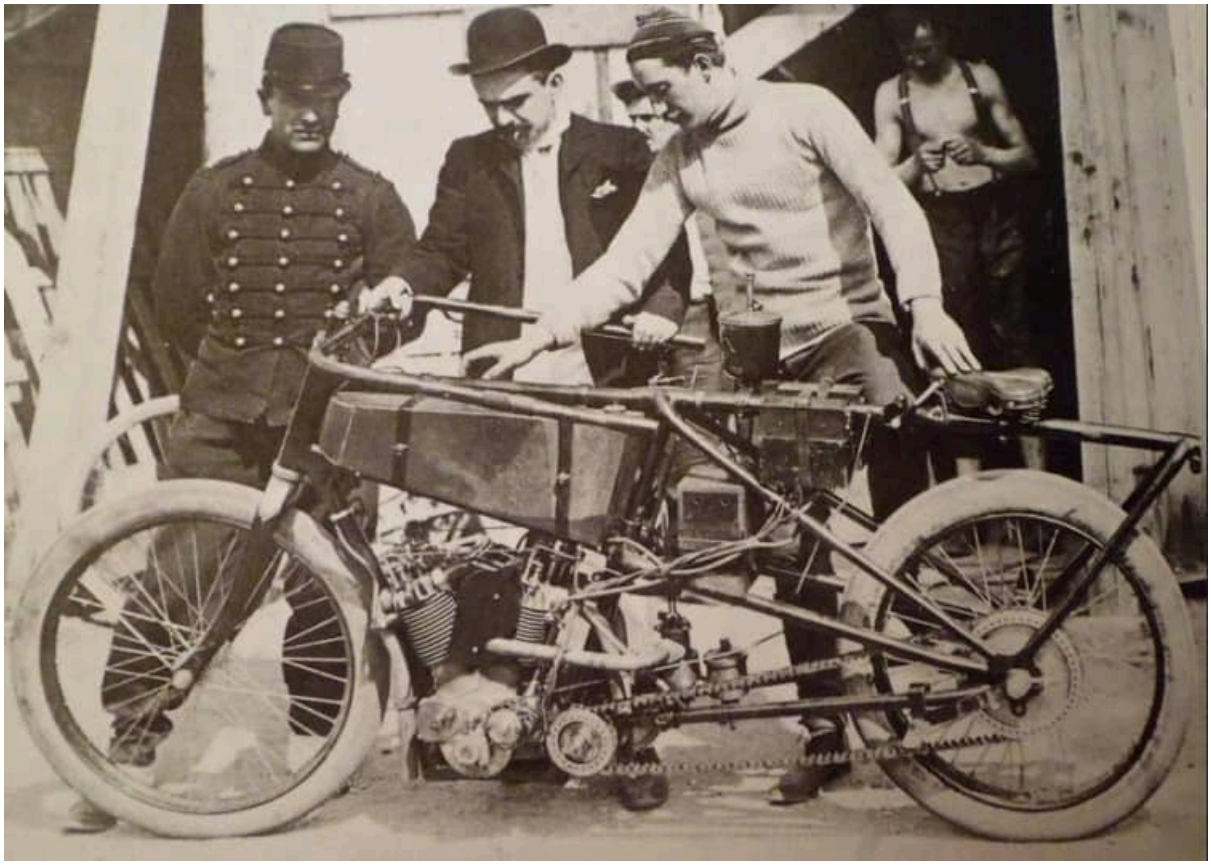
“The Star-Griīon Motor-Bicycle.”



A V4 Clement won the 'heavy motor cycle' class at the Oostende races. However, The Motor Cycle noted: "Despite the huge engine the machine did very little better than the Star-Griīon in the under-110lb class."



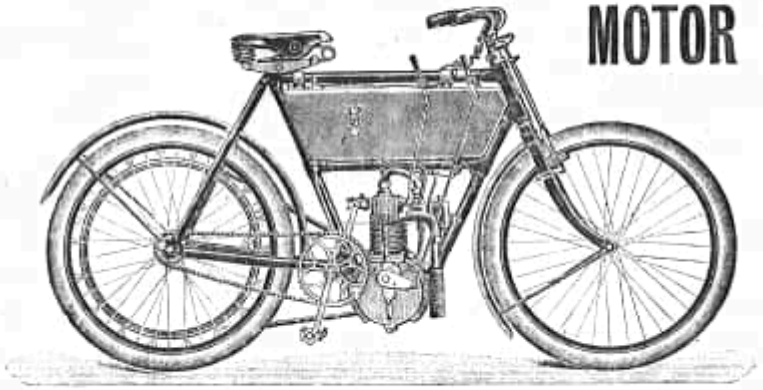
“Sauveniere on Clement Motor-Bicycle in the □öyingkilometretrial, which he won at Ostend.”



Theformidable Maurice Fournierwith the equally formidable V4 Clement on which he averaged 88.9km/h over 10km at Paris's Parc des Princes. Spectators were said to be terri□ðedbythe spectacle—but Fournierbecame the fastest motor cyclist on the planet.

THE STAR GRIFFON MOTOR CYCLE.

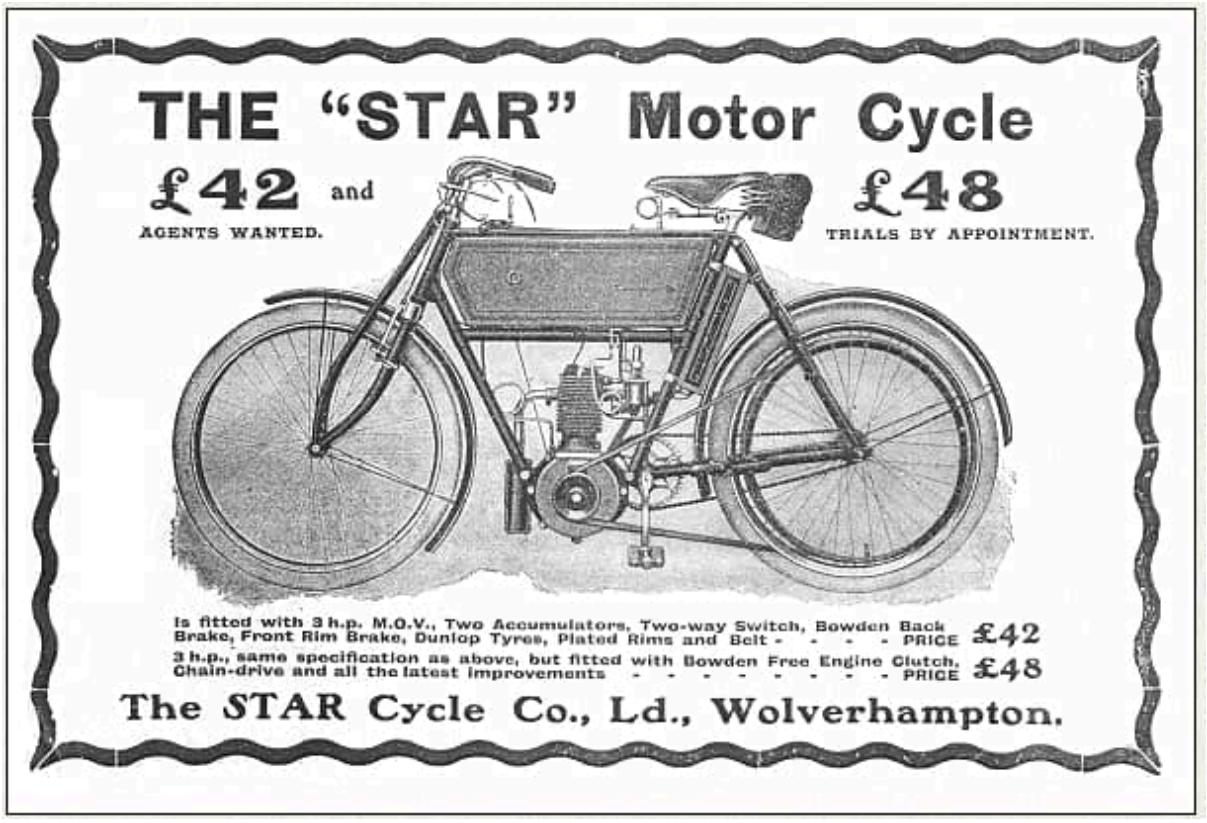
40 GUINEAS.



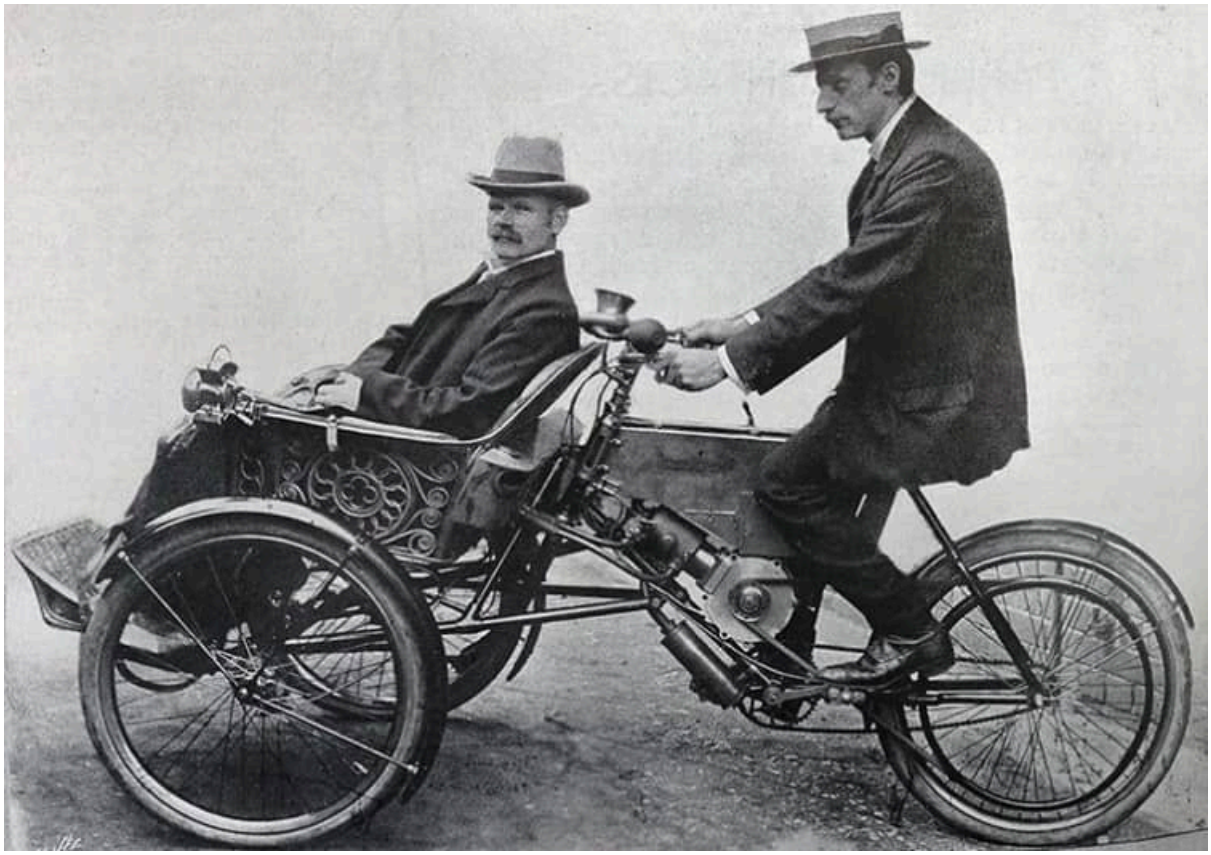
Engine 2 h.p. Fitted with Dunlop Tyres.

Send at once for Particulars.

STAR CYCLE CO., LIMITED, WOLVERHAMPTON.

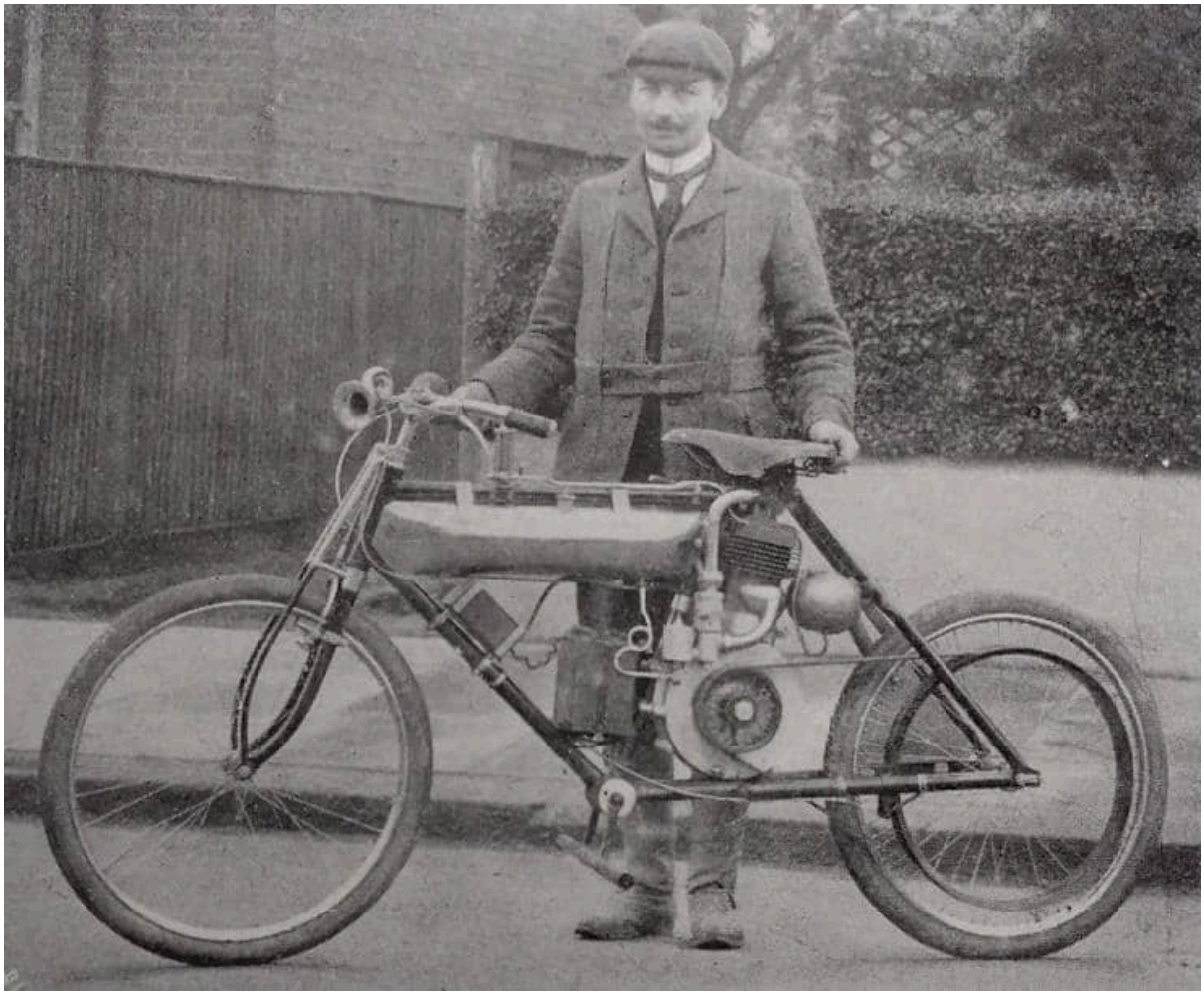

THE "STAR" Motor Cycle
£42 and £48
AGENTS WANTED.
TRIALS BY APPOINTMENT.
Is fitted with 3 h.p. M.O.V., Two Accumulators, Two-way Switch, Bowden Back Brake, Front Rim Brake, Dunlop Tyres, Plated Rims and Belt - - - - PRICE £42
3 h.p., same specification as above, but fitted with Bowden Free Engine Clutch, Chain-drive and all the latest improvements - - - - - - - - PRICE £48
The STAR Cycle Co., Ld., Wolverhampton.

Six years before adopting the name AJS, the Stevens brothers built their □ðrst complete Stevens motor cycle. It was an open-frame lady's model ridden by their sister Lily, the □ðrst female motorcyclist in Wolverhampton. Lilly's sister Ethel, aged 14, also had a go and was stopped by a copper. She wisely pretended to be her big sister and later produced Lily's license at the nick.

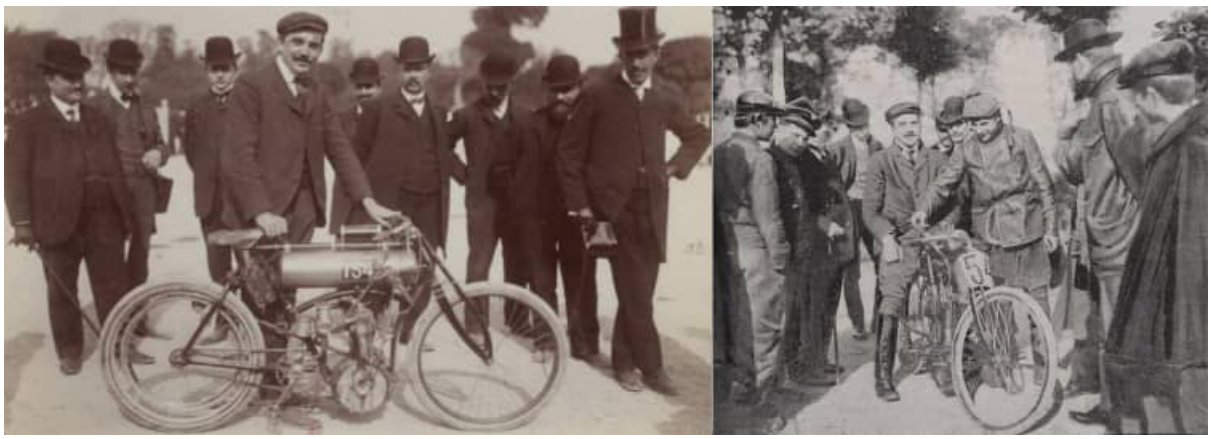


The Stevens boys also produced the Motette forecar; that's Harry Stevens in the saddle (only fair as Harry designed the Stevens motor cycle).

THERE WAS GREAT international interest in the Paris-Madrid race though some enthusiasts wondered if motor cycles were really up to such a severe test. A number of Brits joined the fun, though it was reported: "The formalities to be gone through by the foreign riders were ridiculous and irksome, some of them occupying most part of the day before they could be discharged. They had to submit their machines for judgement as to whether they were bicycles that could be driven safely to the Department of the Engineers of Mines and then prove they as riders were also capable of directing them." However not all the pre-race tests were so rigrous: "We were interested, and, it must be confessed, somewhat disgusted, while watching the weighing of the motor bicycles for the Paris-Madrid race, to observe the amount of perverted ingenuity that had been employed in reducing the weight of motor bicycles of from 4 to 5hp, so that they would pass the 50kg class. Readers will say it is impossible, seeing that an ordinary 2hp commercial motor cycle



AE Wright was one of two British Ormonde riders in the Paris-Madrid; after dealing with endless punctures he dropped out with heat exhaustion. The other Ormonde rider, Sidney Bowkett, was engaged by The Motor to report on the great race.



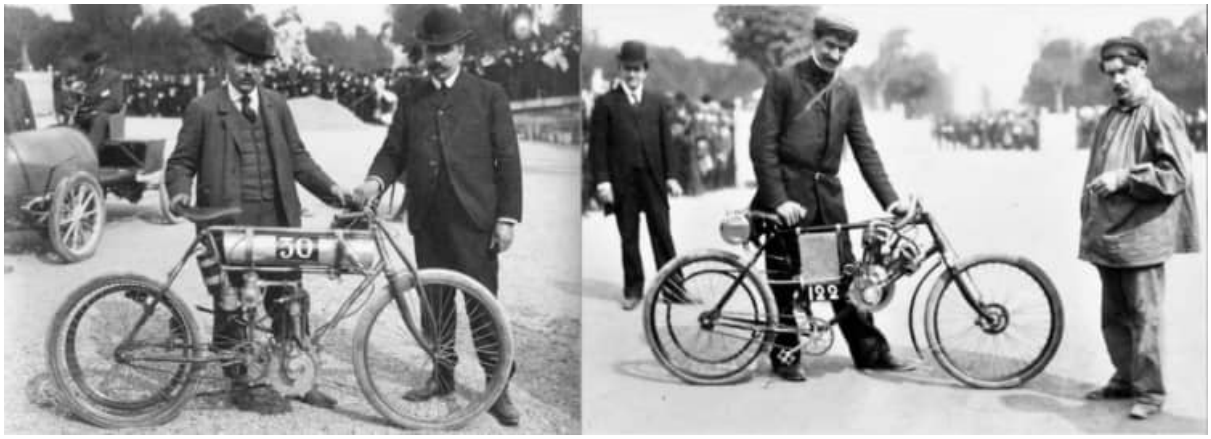
This Griīon, ridden by Dominique Lamberjack, was among the 54 motor cycles and 170 cars in the chaotic Paris-Madrid race. More than 100,000 spectators at the start blocked roads for miles around; the race was stopped by the authorities after three spectators and □ðve competitors were killed and dozens more were injured.

weighs 50kg and over, even without petrol, oil, or accumulators. On the other hand, this is very easy to explain, when we say that the above-mentioned motor bicycles were weighed for the Paris-Bordeaux race with ordinary track racing tyres on, half the usual bolts missing, no chain,

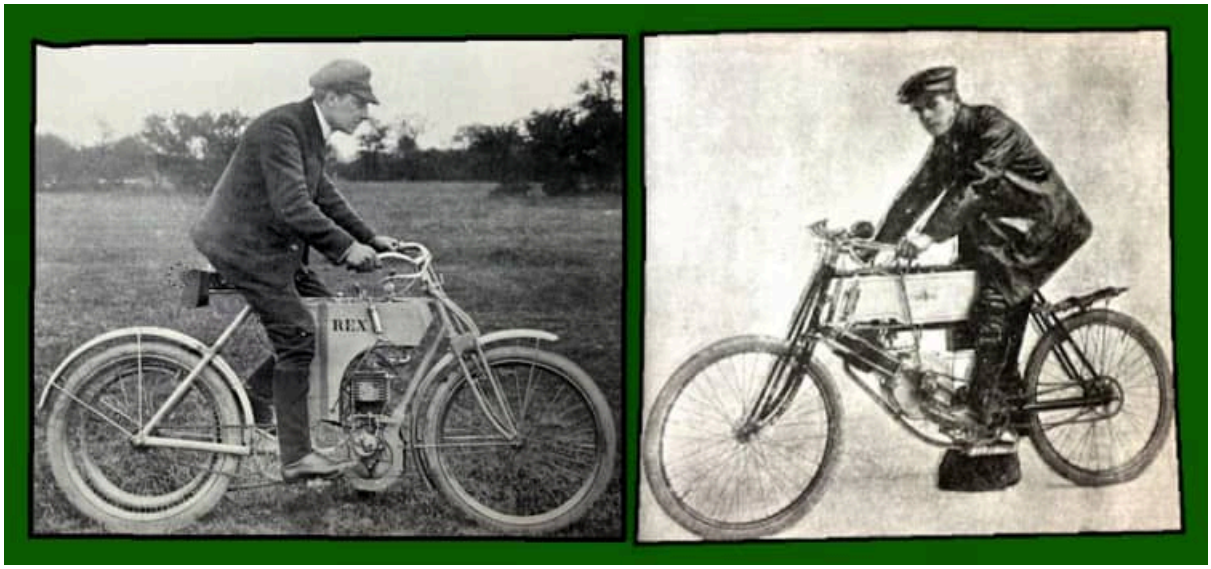
no pedals, in many cases no cranks, sprockets, or chain wheels, and on one of the motor bicycles we even saw a seat-pillar made of wood painted with aluminium powder, tanks of only one litre capacity, handle-bars as thin as paper, and these perforated all over with holes for the purpose of lightening them. In addition, tyre lock nuts were non est, and circuit wires were made of thin electric bell wire. Many of the coils were actually only attached to the frames by pieces of leather, in some cases string even being used for this purpose. By these means the weights were brought down to 49kg 999g! But next day, when ready to start, the motor bicycles of which we are talking were totally diīerent machines. Everything required for safety had been replaced. The general outline remained the same, and this naturally deceived the starter; but the details necessary for road racing had been replaced, which of course meant an increase in weight." Riders started in pairs at one-minute intervals on the 345-mile run to Bordeaux. As they arrived they all complained of nails thrown onto the road which had caused numerous punctures. There were stories of cars blocking the road and competitors brought to a halt by spectators wandering in front of them. More than one Brit pulled over with fatigue and heat exhaustion, the quickest competitors took nine hours to reach Bordeaux where the race was cancelled following a number of fatalities. "The impression caused by the accidents was so great that that the Prefect of the Department sent an order to prevent the racing machines from leaving the grounds where they were exhibited on the day following the race, without a special authority, and this was only given on condition that the vehicles were hauled away to the railway stations to be put upon waggons for their destinations."

EH Arnott, captain of the MCC was among the British contingent to head over to Paris for the big race. He's pictured here on his Werner.

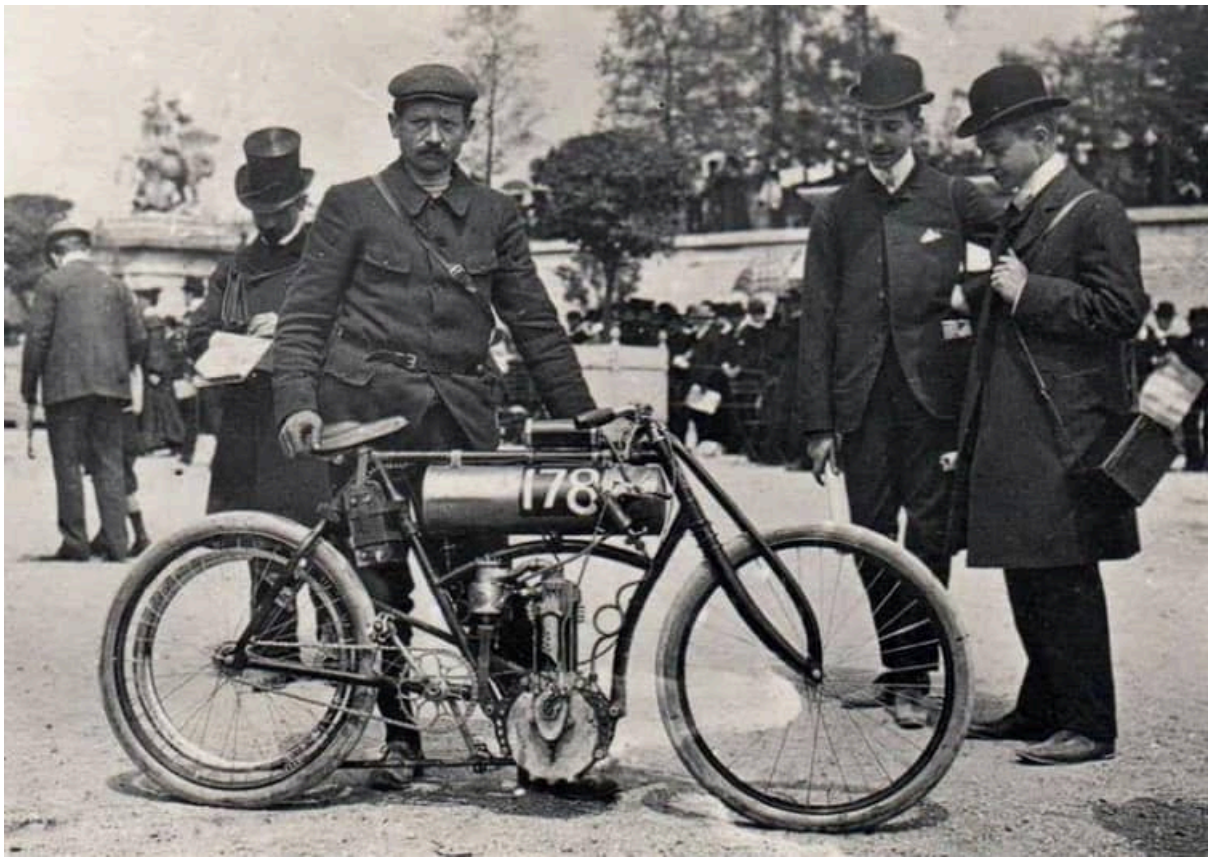
Derny with his Paris-Madrid Clement.



Echard with his own machine, reasonably called an Echard and (right) an unidentifed Clement pilot. Both were pictured during the weighingin at the Tuileries.

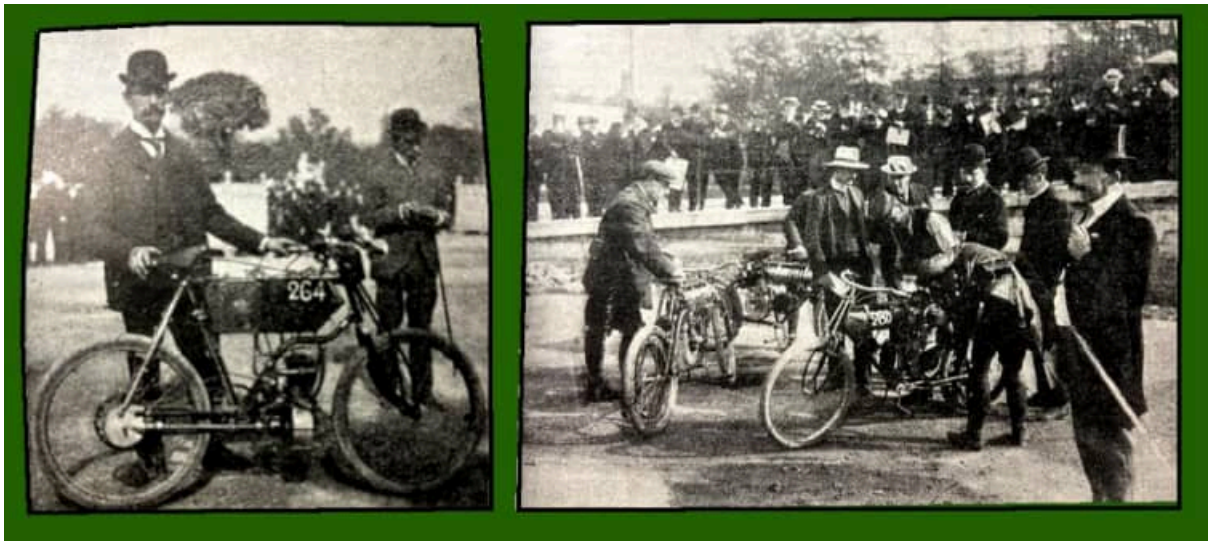


“Mr GeorgeGawdreyon the RexMotor-Bicycle which he will ride in the Paris-Madrid race. As will be apparent, the RexCo have not built a racing monster, but are entering one of their ordinary roadster pattern with a 3hp verticalk engine of their own make. This race will prove a searching test of the reliability of any machine entered.” (Right)“One of the drivers—Ball—whowill manipulate this Humber Motor-Bicycle in the Racefrom Paris to Madrid.



Also pictured at the weigh-in is Lesna on his 3.5hp Peugeot

Another Paris-Madrid contestant on his own make of bike; in this case man and machine were named Haustgen. The marque was born in 1902 and died in 1904.



"The Motor-Bicycle made by the Moto Mfg Co of France, with engine set transversely. (Right) Preparing the Ormondes for the Paris-Madrid Race."

PARIS-MADRID (Une motocyclette.)

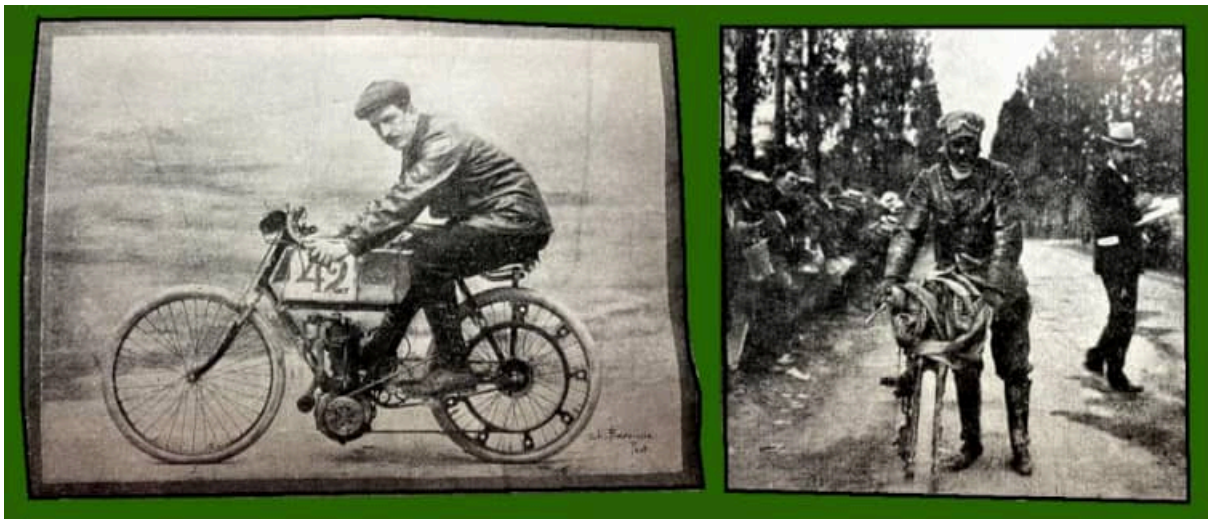
Soak up the athmosphere in this wonderful image of the Paris-Madrid, courtesy of the Francois archive. You can taste the vin rouge in that cafe…just right for a swift pint of Absinthe.

Dominique Lamberjack, pictured at the Dourdan speed trials.

The foregoingreport and pics from the Paris-Madrid was concocted from. a variety of sources. I've now read a full report in* The Motor *which indicates that the event was a shambles that cost the lives of competitors and spectators. It seems that 139 "heavy and light cars" started, as did 36 "voiturettes" and 52 motor cycles. The race was stopped at Bordeaux to avoid further fatalities and led France to follow the British lead by banning road racing. There were fears that the Gordon Bennett Race in Ireland at risk, though in the event well-heeled French drivers hired an ocean liner to take them to Ireland; for two weeks they used it as their headquarters.

ONLY 15 BIKES GOT AS FAR AS Bordeaux. Arnott was the □ðrst Britto □ðnish, in 10th place. The results were: Motorcycles: 1, Bucquet (3½hp Werner) 8hr 57min 1sec; 2, Demester (3½hp Griῖon) 9hr 3min 44sec; 3, Jollivet, (3½hp Griῖon) 9hr 25min 54⅖sec; 4, Cissac (3hp Peugeot) 9hr 39min 36⅕sec; 5, Lanfranchi, (3½hp Peugeot) 9hr 50min 40sec; 6, Derny (2 cylinder Clement) 10hr 23min 23sec; 7, Griet (3½hp Griῖon) 10hr 43min 46⅕; 8, Momo (4hp Peugeot) 11hr 3min 20sec; 9, Prost (2½hp Doue) 11hr 42min 5sec; 10, Arnott (3½hp Werner) 12hr 8min 2sec; 11, Martel (3½hp Griῖon) 13hr 11min 2sec; 12, Baret (3hp Bruneau) 13hr 59min 0sec; 13,

Maillard (3½hp Werner) 14hr 3min 18sec; 14, Conderc (3½hp Peugeot); 15, (2½hp Vaurs). The □ðnaltwoarrivedoutside the time limit. Bikes had to meet the 50kgweight limit which was



“Bucquet on the Werner he is riding in the Paris-Madrid Race. It will be noticed it has two saddles, allowing a change of position.” He was the □ðrstriderto reach Bordeaux. (Right) “Demester and the Griīon: second Motor-Bicycle to arrive at Bordeaux.”

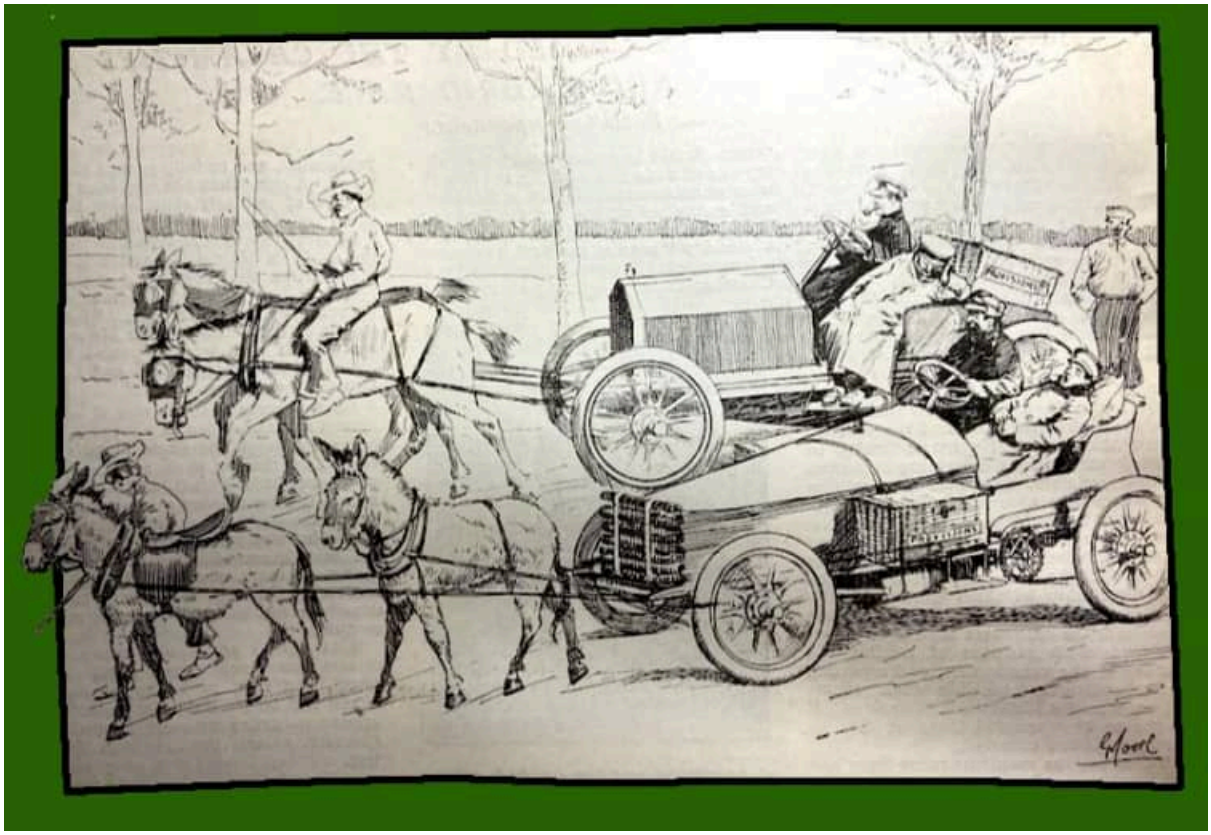
ubiquitous on the Continent. This encouraged bikes that were fast but sacri□ðcedbraking, muduguarding and rider comfort on the alter of speed. As we will see the Brits □ðnalreactedto this with a race for touring bikes (yes, of course I mean the TT). Thefollowing excerpts from The Motor give some idea of the chaos that beset what was planned to be the greatest inter-city road race to date: “We are writing this in the knowledge that the rest of the race is prohibited, a private telegram having reached the little band of English journalists and pressmen at Bordeaux early this evening, and before the news got through to the Automobile Club. Thereis no doubt in our minds that motor racing in France has ended—ended in black tragedy—theregrettable incidents of the ill-fated Paris-Madridcourse havingsounded its death knell. And it is diīicult to foresee the outcome of it all, because in everycountry both government and people are ever prone to panic legislation, and if this, by some unfortunate chance, is not averted, the net results must be harmful, whereas, properly applied, the lessons learned from the catastrophes could be made pro□ðtable…Theawfultaleswhich reached us from competitors when they arrived were simply blood-curdling, and before the end of the day there were over a dozen competitors killed, and even more spectators. From all this mass it was diīicult to pick the wheat from the chaī, and the news of the condition of the various competitors which has come in to Bordeauxfrom time to time since is so contradictory that one feels unable to believe anything…Theprotective forces performed their duties in a most

perfunctory way. Theinfantry were a lot of boys, who acted as if they had just been allowed out of school. To see them playing about on the roads, twisting their bayonets into all sorts of shapes, and then, instead of keeping the crowd in line, themselves wandering about the road, and seeing that their own view of the race was not spoiled, gave a Britisher, who knows how these things are managed in his own country, a profound contempt for the French soldiers. The oīicers could do little, and very seldom tried to do anything with the slovenly lot they had to deal with, and so we would see one of them leave his post, cross the road, and playfully drop his ri□ðebutton an unsuspecting comrade’s foot. Then there would be more horseplay when the latter got his revenge. Is this the way to protect the public? Is this the way to keep a clear course? Is it to be wondered at, therefore, that spectators and racers were killed and maimed,

that regulations were evaded, or that the competitors were forced to snatch time in controls, when such laxity prevailed?…Matterswould not have been so bad had even the incomplete arrangements and regulations been carried out. Here the lack of thoroughness and the absence of conscientiousness in the carrying out of an imposed duty, which are so characteristic of the French nation, came in. Thesignalling and the marking of dangerous portions of the route were carried out for a time, but then the tired feeling came over the men, and warning □ðagswouldbe taken away from the course just when they were needed to avert a catastrophe. At the controls the regulations were carried out in a disgraceful manner…"

…and here's part of the Paris-Madrid report in TheMotor Cycle...

"ON OURARRIVALATBORDEAUXthewiresfrom the diīerent controls enabled us to piece together the story of the motor cycle race. Thecompetitors left Versailles in pairs at minute intervals, the □ðrsttwobeingsentoī at 6hr 19min. Bucquet, on his Werner, started with Momo a minute behind the □ðrstcouple,and he covered the □ðrst26kmtoRambouillet in 21min while Demester took 25min 17sec, Lanfranchi 25min 28sec, Derny 27min 29sec, and H Arnott 28min 28sec. On the way to Chartres (74km), Demester had passed Bucquet and arrived at the control nearly a minute ahead, making close on six minutes in actual time, and then came Derny, Lanfranchi and Arnott. So far scarcely any of the motor cyclists seem to have given up, though the way in which they were tailing oī showed clearly enough that many of them were being delayed by punctures and other troubles. Interest was now being centred in the struggle between Bucquet and Demester, the former having now made up his loss, and was the □ðrstto reach Chateaudun (119km) with Demester, Arnott, Lanfranchi, Haustgen, Cissac and Derny all in good positions. Theonly English bicycles now left in the race were the Ormondes ridden by Wright and Hacking . Themotor cyclists now found themselves among the cars, which occasionally gavethem a good deal of trouble, though the tourist cars were the worst oīenders in this respect. Wright declares that he had to pull up to avoid running into a touring vehicle which was drawn right across the road, and he and the other competitors were terribly worried by the spectators, who spread out over the course to such an extent that they were obliged repeatedly to cut out and brake for fear of accidents. At Vendôme (158km) a large number of the motor cyclists had dropped out, nearly all of them apparently due to tyre bursts and punctures. Not a single competitor seems to haveescaped trouble of this kind. On the whole, it would appear as if the tyres were much too light for such a race, in which the cycles frequently travelled up to 50mph; and what with the hot weather and the wear and tear of racing at such speeds, the tyres would have to be indestructible to go through without trouble. Thetyres ought to be much heavier in a race where they are put to such an exceptionally severetest. At Vendôme the positions of the leaders remained with little change, but at Tours Demester was again in front, with Bucquet, Lanfranchi and Arnott in that order. Between Tours and Châtellerault, Lesna, the old bicycle champion, who was riding a Peugeot



“How are the mighty fallen? The high-powered racing cars were not permitted to leave Bordeaux under their own power, but were to return drawn out of the town by horses—a contrast to the outward journey!”

cycle, met with an accident at a level crossing. One of the Ormonde riders, Wright, was now having a lot of trouble with his tyres, which went □ðat every few miles, and most of his time was taken up in repairing and pumping. The heat and the climate were now telling on him, and towards evening he actually found himself dozing on his machine and waking up with a start as the bicycle swerved. When the tyre went □ðat for the last. time Wright saw that it was hopeless to expect to get to Bordeaux that day. Had he continued, he feared that he would have fallen oī his bicycle. He therefore pushed the machine back to the control and dropped incontinently to sleep. This appears to have been the experience of a good many riders who were not accustomed to the heat of a Southern climate. Meanwhile, Demester was still leading at the controls, with Bucquet second; and Cissac had improved his position and was running with another Peugeot rider, Lanfranchi, while Arnott, Derry, Momo and Jollivet were following in that order. The race between Demester and Bucquet was now very exciting, for there was only a few minutes’ diīerence between them; and, taking into account the times of starting, it was really diīicult to say who was actually leading. At the Bordeaux control it was not expected that the motor cyclists would arrive until very late. So few of the cars had come in that it was feared the disaster which had befallen so many of them would have overtaken the motor bicycles but fortunately these fears mere not realised, and if the proportion of machines to □ðnish was very small, it can only be attributed to the tyres, which were put to an ordeal through which they had probably never gone before. The bicycles behaved splendidly, as will be seen from the times of the □ðrst half dozen. It was after six o’clock that the □ðrst motorcyclist was signalled, and Bucquet drew up to the control, where he got as big a reception as was given to the winner of the big car section. On account of the fatal accidents to some of the cars the French Minister of the Interior prohibited a continuation of the race to the frontier, and this interdiction was

extended to Spain by the Spanish Government; so what promised to be the greatest and most interesting race yet held □ðnishedabruptlyat Bordeaux. The impression caused by the accidents was so great that the Prefect of the Department sent an order to prevent the-racing machines from leaving the grounds, where they were exhibited on the day following the race, without a special authority, and this was only given on condition that the vehicles were hauled away to the railway stations to be put upon waggons for their destinations. One or two of the motor cyclists went to Spain to complete the course; but the restrictions in that country were as great as they were at Bordeaux. It is reported that as the result of the accidents in the race the French Government is revising the regulations relating to autocar and motor cycle traïic, so that the event is likely to have an unfortunate ending in more ways than one, though it is too early yet to say in what stay the existing regulations may be modi□ðed."

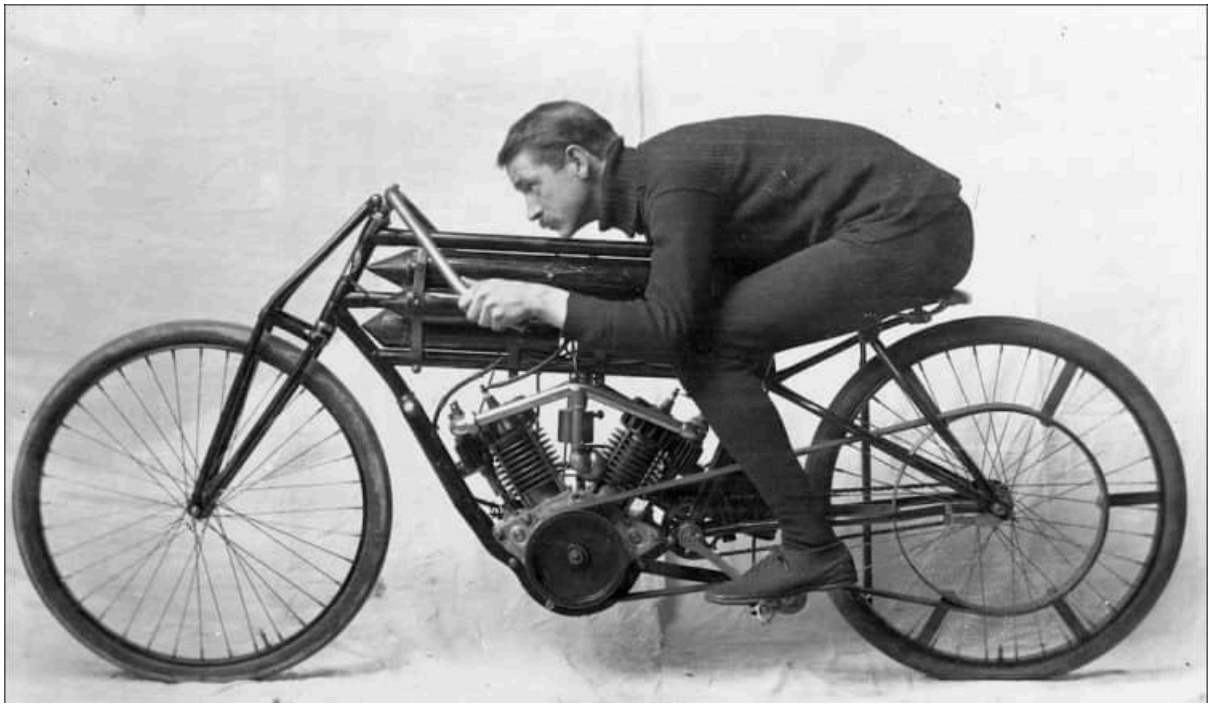
"IT APPEARS THAT THE accident to Lesna, who was the only motor cyclist injured in the Paris-Madrid race, happened as follows: On approaching a level crossing over the railway at Port de Piles he came on a gipsy's cart right in the middle of the roadway, in attempting to pass which he struck one of the iron posts supporting the barrier, was thrown forward on to the railway track, and falling with his knee on one of the rails fractured his knee cap."

"WE HAVE RECEIVED a long letter from Messrs Werner Frères, of Paris, in which they wish us to make it clearer than we did, in our comments on the Paris-Madrid race, that the successful Werners were thoroughly equipped with everything that was necessary for the lengthy journey, and that comfortable saddles, large tyres and two brakes were □ðtted. We mentioned that Werners had been more successful in their pruning down, with the result that, whilst they came within the weight limit at the oïicial weighing, they were thoroughly complete and eïicient machines. They arrived at Bordeaux in good order, and seemed □ðttoaccomplish the remainder of the trying journey with credit to themselves. This was mainly due to the fact that the □ðrstidea of using machines with large engines was abandoned, moderate sized engines being used and a little more allowed for the tyres. Messrs Werners claim that speed is of much greater importance than we are willing to concede, but they admit that it must go hand in hand with 'reliability, regularity and precision of workmanship'. They also advance the opinion that progress is of supreme importance, even though it may claim its victims, and the ill-fated Paris-Madrid race marked the summit of immense eïort on the part of the new industry, demonstrating the fact that the extreme limit of speed had been attained, whilst at the same time valuable information on the resisting power of metals has been obtained. Of all their victories, Messrs Werners are the most satis□ðedwiththe result of the □ðrststageofthe recent race."

THE 1903 MOTOR Car Act (it came into force on 1 January 1904) required every motorised vehicle to be registered with the owner's county council and □ðttedwithnumber plates. It increased the national speed limit from 12 to 20mph with lower local limits, and driving licences were introduced. There was no driving test, just a □ðve-bob(25p)feewith a minumim age of 17 for cars and 14 for motorcycles, which were de□ðnedasvehiclesweighing up to 3cwt with up to three wheels. The oïence of 'reckless driving' came in to control pioneer roadhogs. Horses still ruled the roost – noisy exhaust cut-outs were banned and drivers were required to "stop, and remain at a standstill, for as long as may be reasonably necessary" if a horse rider held up his hand. And riding side saddle on a motorcycle was banned.

The Liverpool MCC, pictured en masse at the Parbold hillclimb. The bikes are Humber, Werner, Bat, Rex, Werner, Royal En□ðeld, Humberand, the forecar, Humber Olympia,

IT WAS A NOTEWORTHY year for motor cycling in the USA. William Harley and Arthur Davidson produced a 3hp motorcycle and sold it to an old schoolmate; Indian chief engineer Oscar Hedstrom set a motorcycle speed record of 56mph over a measured mile at Daytona Beach; Reading-Standard made Thor-engined Indian clones. A year after making his □ðrst motorcycle Glenn Curtiss rode a Curtiss to victory in the □ðrst American hillclimb; then, at Providence, Rhode Island, he set a □ðying-mile single-cylinder record at 63.8mph; this is generally accepted as the □ðrst motorcycle world speed record. And following 'agitation' by the New York MC and the Alpha MC, the Federation of American Motorcyclists (FAM) was established at a meeting in the Kings County Wheelmen clubhouse in Brooklyn. It recuited 70 enthusiasts as 'charter members', stating: "Any rider of good character is eligible for membership." Applications could be endorsed by existing members or by "two reputable citizens of the town of his residence"…"Its objects shall be to encourage the use of motorcycles and to promote the general interests of motorcycling; to ascertain, defend and protect the rights of motorcyclists; to facilitate touring; to assist in the good roads movement; and to advise and assist in the regulation of motorcycle racing and other competition in which motorcycles engage." Committees included Membership; Legal Action; Competition; Roads, Touring and Hotels; and Transportation and Facilities.



Having set a record on a single, Glenn Curtiss upped the ante with a 5hp V-twin (the □ðrstofits kind in the States), which powered his new Hercules. It debuted at the New York MC Riverdale Hill Climb, easily taking □ðrstplaceoutof 20 entrants.

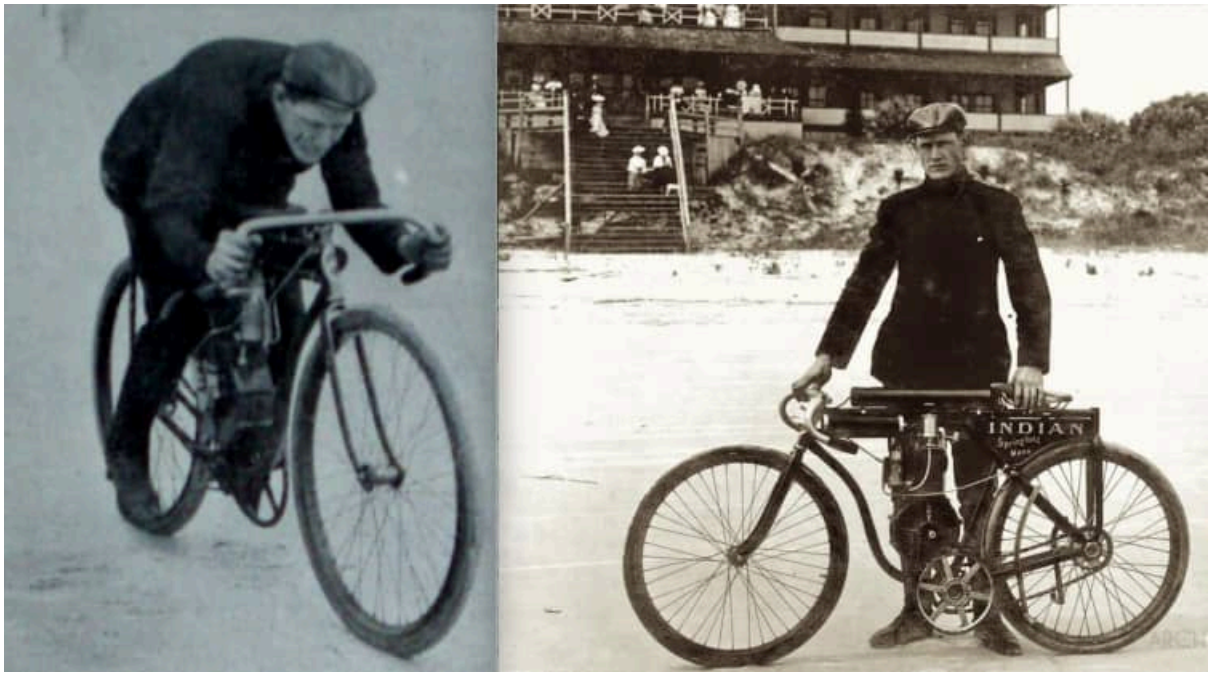
Walter Davidson, □ðrstpresidentof Harley Davidson, with the company's □ðrstbike.

…andhere's a colourised version.

This is said to be the only known photograph of one of the □ðrstthreeHarleysto be sold.

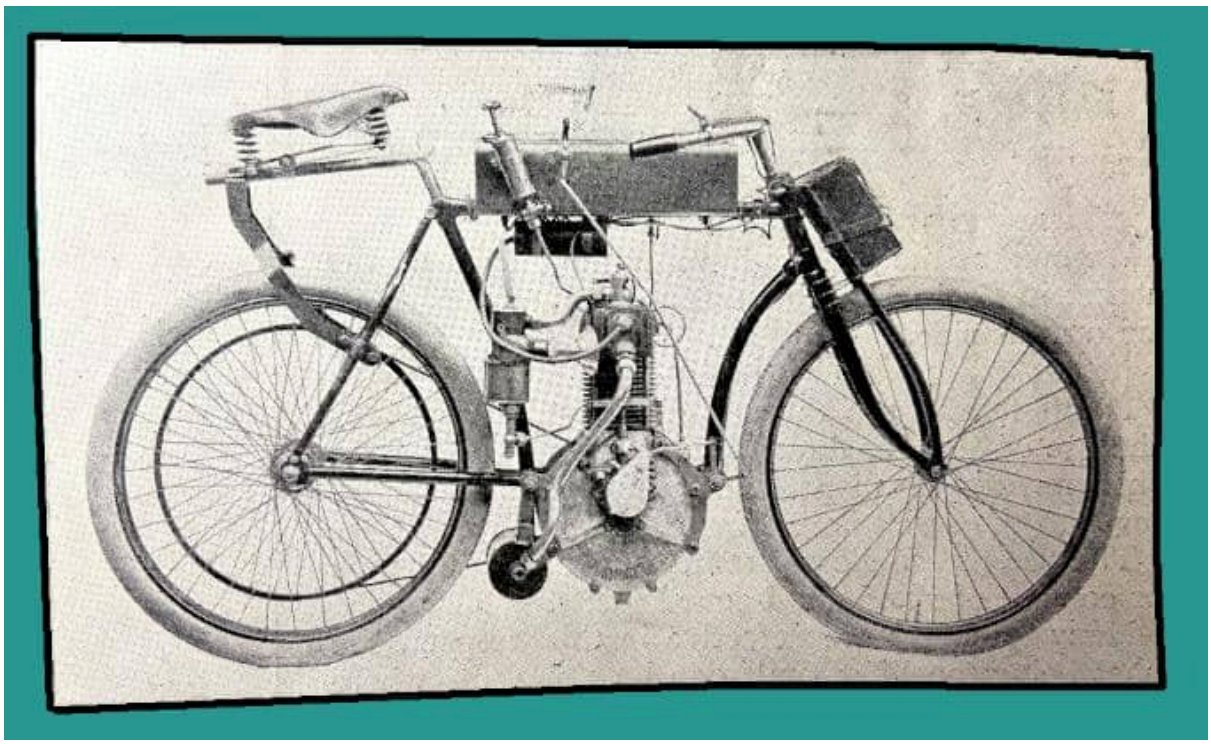
“THE POWERTOCONTROLanymotive vehicle is an element which cannot be underestimated. It must be simple and positive, especially when upon a machine intended to thread its way in and about heavily travelled streets where loss of control would be fatal. To control the Indian motorcycle, but one lever is used. It is termed the speed lever. It is easily reached without removing the hand from the handlebar. To the beginner it is a marvel of simplicity because, with but one lever to think of, accidents are impossible, as one cannot become confused over several levers of which they do not know know even the functions. The speed lever starts the machine, increases the speed, and stops the machine. It also lifts the exhaust valve, so that the machine can be handled without compression in the cylinder. This enables one to start with-out compression, and without touching any relief lever or pet-cock. To start: pedal, throw speed lever over a quarter of an inch, which drops the exhaust valve, and engine starts. The further the lever is thrown over the faster the speed. The time of the spark is governed by this lever throwing the contact breaker forward. This lever will give all possible speed required for road work, and will take the machine up 10 and 12% grades. When heavier grades are met the gas lever is used. This simply gives a heavier charge to the engine, thus increasing the power. The □ðowof gasoline—the known quantity—is □ðxedanddoesnot require regulating. The air—unknown and variable quantity—is regulated and adjusted by the air regulator. The machine can be stopped instantly also by turning the left grip to the left, which breaks the electric circuit.”

“A compact light bicycle of American design. The rider is Oscar Hedstrom, the inventor and designer of the Indian bicycle, the Hedstrom motor and Hedstrom carburetter.”



Oscar Hedstrom rode an Indian into the record books at Ormond Beach, covering a mile in 1min 3.2sec on what is the □ðrstofanillustrious series of Indian works racers. Skip forward to 1911 to see what a shock they caused on TheIsland. Presumablythe ladies in the large hats at the resort hotel in the backgroundassumed it was some sort of entertainment for tourists.

DE DION-BOUTONbuilt a six-litre V8 car. Theymight have been surprised to know that a century later a V8 engine of comparable size would power a production motorcycle.



“The new De Dion Racing Bicycle.”

MOTORCYCLINGreported:“Some remarkable developments in the application of the turbine principle to the construction of petrol motors are expected shortly. Messrs.Birch and Co, of Salford, have designed a 3hp motor on this principle, and they claim that it runs very

economically at high speed, and with a total absence of vibration. At present the motor is □ðtted to a bicycle, and the inventors are highly satis□ðedwiththeresults obtained."

RIGHTLYPREDICTINGthatthecar market would far outgrow the motorcycle market, Temple Pressrelaunched its new motor cycling magazine as TheMotor (on 28 January).This left the growing band of motorised bicycle obsessiveswithout a magazineof their own, but not for long.

Rudge-Whitworth had a row with Werner over the Rudge-Wedgemotorcycle (which you might recall from 1902). Rudge-Whitworth's Johannesburgdepot manager was approached by Werner to sell their machines in South Africa. AsRudge-Whitworthdid not sell motorcycles there appeared to be no con□ðictofinterest, so Werner signed a contract with the Coventry company to send 36 machines to South Africa, with Rudge-Whitworth acting as sole agents for Werner. However,it soon transpired that other Wernermotorcycles were being sold in South Africa at a cheaper price. Rudge-Whitworthrefused to pay Wernerthe balance due on the shipment; the dispute was settled out of court.

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TheMotor continued to cover the motor cycling scene but Illiīe Presswasted no time in launching the ðnestmotorcycle magazine the world would ever see. Am I prejudiced? Damn right I am.

THEFIRSTISSUEofTheMotor Cycle, published by Illife Press, was datelined 31 March–its actual launch date was 1 April but April Fool's Daywas held to be an inauspicious launchpad. In later years a blue masthead was adopted which earned it the nickname TheBlue 'Un. The ðrst page of the ðrstissuecarriedwhat would now be called a mission statement: "The main points of the policy of TheMotor Cycle will be: (1.) Togivepractical and useful information to motor cyclists. (2.) Toexplain the working of the motor and everypart of the machine in the clearest possible manner. (3.) Todescribe new inventions and improvements. (4.) Toreward all matters of interest in the motor cycle world. (5.) Topromote the exchangeof ideas and useful information between motor cyclists. (6.) Toreply to queries. (7.) Tohelp the motor cyclist to get the utmost enjoyment from the pastime, (8.) Tobear in mind that many motor cyclists are not in receipt of large incomes. (9.) Tofoster motor cycling in everypossible way." Themagazine grew with the industry; like British motorcycles, it was a world-beater. After six years Temple Press realised the error of its ways and relaunched Motor Cycling (this time with no mention of Motoring). Forthe best part of 60 years Motor Cycle and Motor Cycling would be friendly rivals as the Blue 'Un and the Green 'Un; they ðnallymergedin 1967.

TheMotor Cycle was published for 80 years; it was at the heart of the British motor cycle industry.

For 60 years, the pages of The Blue 'Un were graced by glorious prose courtesy of the Rev BH Davies, who used the nom de plume Ixion (sometimes both bylines appeared in the same issue). In these days of media overload is hard to comprehend the esteem in which Ixion was held by generations of enthusiasts. Truth be told his copy is the best thing in this timeline.

6,000 MILES ON A MOTOR BICYCLE.

A TALE WITH SEVERAL MORALS.

By an old Cyclist, a Fisherman, and an Automobilist.

"IT AROSE IN THIS WAY: my friends who were not so speedy as I on the ordinary common or pedal bicycle obtained motors, and started oī so early in the morning, went so far, and got back so late at night, I came to the conclusion that the way to see life was to have a motor bicycle. My knowledge was absolutely nil. The □ðttingsandengine were ordered from □ðrmswitha great reputation, and I waited delivery with great anxiety. To cut a long story short (as to the building up), after waiting for bits of wire and things, the machine was completed in □ðveweeksthree days—somehours odd later than the promises made by every-body. But the disappointment of this was overcome by anticipation and excitement, when at 11pm the machine was nailed down by the steps of back wheel on two soap boxes, and an attempt made to start. After a few futile attempts it spun round at something like 1,000-1,500rpm, and satisfaction was plainly visible on the faces of the half-dozen people present. Now I commence the details of what are usually called troubles, and sincerely hope that my readers will bene□ðtfrommycarelessness and forgetfulness. Theengine □ðttedwasofa well-known make, well made. Nothing happened to it. From a course of hard reading, I learned the 'carburetter' was the box wherein the gas was made. The 'accumulator', an electric battery from which I get sparks to ignite gas and cause the

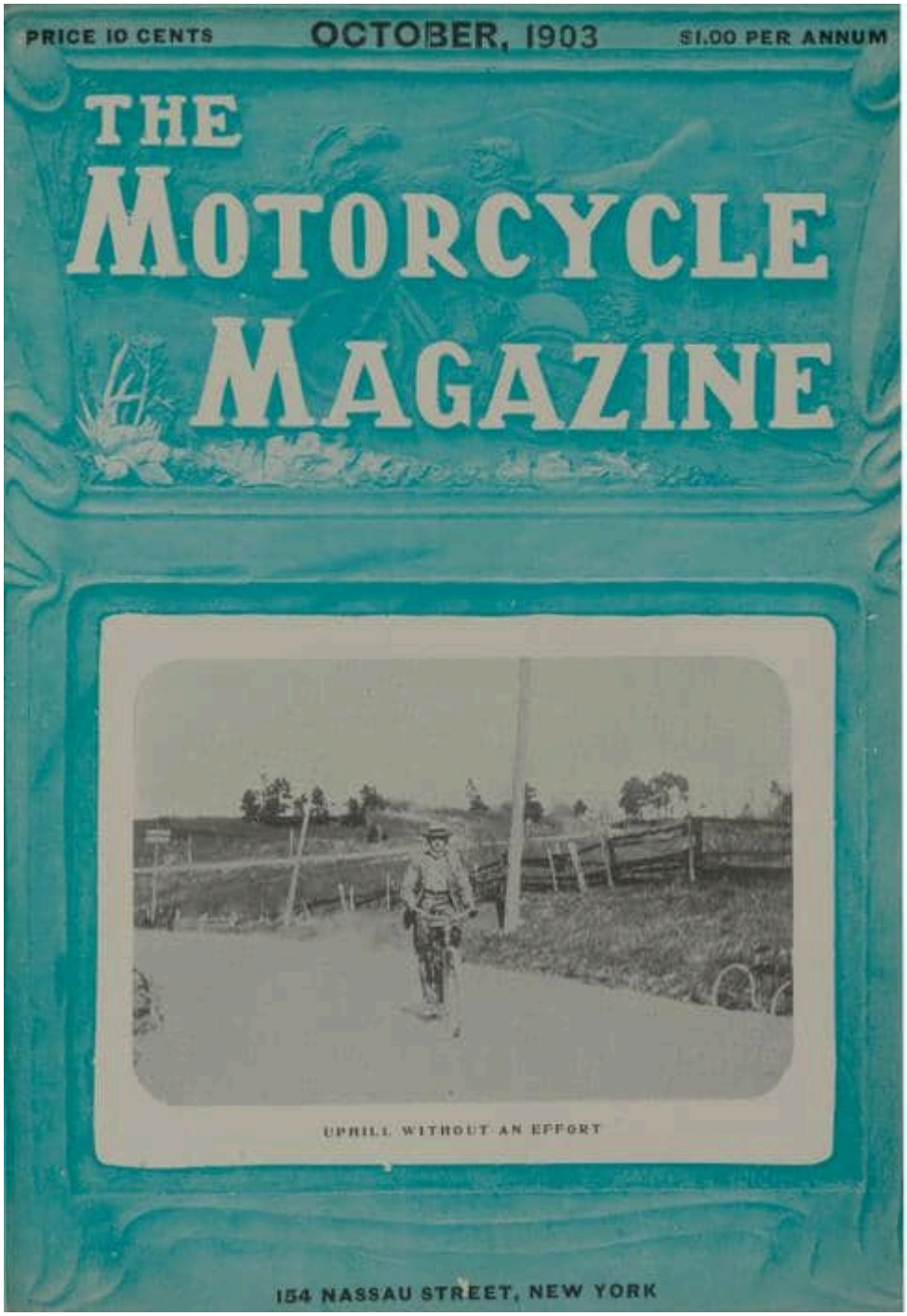
explosion. I have heard the boys in the street call it '□ðt, □ðt'. The 'commutator', the portion of the mechanism that causes the electricity, the gas, and the engine to work together at the proper moment. The 'sparking plug', the arrangement that makes the spark inside the engine to explode the gas at the correct position of the piston. The 'switch', by turning the handle the electric current was in force or not. When not, the engine was a dead and useless article, and a brake to the machine. An early rise at six the next morning by the proud owner of this wonderful machine found that two people could not move it. I will call all forgetfulness and carelessness '**Morals'.** We had run the engine half an hour instead of half a minute; consequently it had overheated, and the piston was galled in the cylinder. This is easily understood when one thinks that the piston stroke is, say, 1,000 to 1,500 per minute, and, being in a close room, the chance of the cooling eīect when travelling was absolutely nil. The lubricating oil had become 'set'. After some time spent in forcing the engine round it was found necessary to inject paraīin into the cylinder and valves. **Moral**.—Always have paraīin handy, and see that there is an inlet at the top of the cylinder in which to inject paraīin, but do not inject too much. The detriment found in the use of paraīin is that when the explosion takes place the paraīin in the combustion chamber ignites, and the smoke arising from the burnt paraīin causes the sparking plug to become sooted up. The electric current is allowed to □ðow through the soot; therefore no sparking takes place. Sparking takes place only when the electric current is suddenly broken. **Moral**.—Do not use too much paraīin, and if doubtful of the cleanliness of the sparking plug brush with a soft brush damped with petrol or clean with □ðne emery cloth, being careful not to cause the gap between the two platinum points to be more than 1/32in, and always carry the brush, the petrol, and the spanner to take out the plug. The machine was started—the sensation both ex-citing and exhilarating—but after getting into the country and ascending a stiī incline the engine seemed to be going tremendously fast and the bicycle much slower than on the □ðat. A stop was made at the bottom of a hill, and after some futile attempts to get restarted it was found that the belt was so loose that in pedalling it did not drive the engine. This will explain the reason why the engine raced away uphill and did not drive the bicycle. The home journey was satisfactorily performed after tightening the belt. **Moral**.—Before starting, see that the belt is suīiciently tight to drive the engine. Carry any tools required to tighten belt. Start on the level or downhill, if possible. After exhibiting the machine on the stand and running it several miles before admiring friends, the next journey was undertaken, and after a run of ten miles it appeared to be □ðring very intermittently. It was found the commutator was not acting as it should do, and upon examining the piece of steel which is called the " trembler " (inside the commutator case) it was found that the platinum points were not touching every time, owing to one point having become 'pitted' or burnt away. By half a turn of the platinum-pointed screw, all went merrily. At the end of 50 miles a pull-up was necessary owing to traīic at a cross road, and in mounting the rider let the machine fall, but without any bad result being apparent for the moment. After a few miles he □ðring was again intermittent, and progress far from satisfactory. Upon examination it was found that the pipe supplying oil to the lubricator had split (this must have been done by letting the machine fall), and the oil had found its way into the carburetter, and the diīiculty in reaching home was in keeping the carburetter clean and getting rid of the lubricating oil that had got into it. This was done by cleansing with petrol. The petrol used in this operation should have carried the machine twenty miles further than the point reached; but luckily, as the last few drops were used a good Samaritan was found, and home was safely made, the distance covered being about 130 miles. By this time recharging of the battery was considered necessary, and it was put in the hands of an electrician to charge, and on the voltmeter showed a voltage of 4. The machine was thoroughly cleaned and promise kept to lend to a friend for a Saturday afternoon's ride. On the Sunday morning the friend called round to

thank the owner for the enjoyable ride he had, and desired a short spin, as the owner was not ready to start. The machine was put upon the stand, but a start found impossible. The plug had been carelessly left in the interrupter, the switch handle left on. The battery had run down in the night, the only remedy being a recharged battery. **Moral**.—Look at your machine after a friend has used it; see that the handle is switched oī; see that the plug is out, and always have a voltmeter handy to test the accumulator, and a fully charged accumulator handy. In mounting machine, did it awkwardly, and did not start; found had kicked sparking plug and broken same. **Moral**.—Always carry a spare sparking plug. Ran two-and-a-half miles splendidly, but □ðring became intermittent, and although it was considered that there was as much as a gallon of petrol in the tank, it was found that there was none. **Moral**.—Always be sure that you have suīicient petrol for the journey anticipated. Next journey, before a crowd of admiring friends and the usual boys of the street, a start for the □ðrst few yards was impossible. The would-be rider had omitted to turn on the petrol. **Moral**.—Make it a point to turn on the petrol, seeing that your interrupter plug is in its place and that the levers are in the best position for starting that your experience has taught you. Next time out, a horseshoe nail through the tyre and inner chamber, and after searching in the tool-bag, although there was every spanner and instrument required to manipulate the motor, the tyre repair out□ðt had been forgotten. **Moral**.—Do not forget the ordinary pedal bicycle requirements. Riding the machine in traīic one day, in switching on, the rider noticed that the switch had to be □ðrmly screwed up before it would act, and on unswitchng the connection was not broken. This was awkward, especially as the traīic was heavy, but proved no great trouble. It was found that some particles of cement had become dislodged, and got between the brass connections of the switch handle. A ride was planned with some friends on ordinary bicycles, and some miles from home there was no sparking obtainable, and on examination it was found that one of the platinum points on the sparking plug had become loose, but upon replacing the plug everything went well. Moral (again).—Do not forget to carry a spare sparking plug. The machine was running splendidly, but it was deemed necessary to give it a good cleaning, after which the □ðring was not as good as it should be. It was found that in the cleaning of the machine the terminal or end of the wire to the commutator had been broken, and only a few strands of wire left unbroken. **Moral**.—Examine your terminals and connections occasionally, seeing that all are tight and clean. After a few days' rest the machine ran beautifully on the stand, and a start was attempted in the road, but without success. Everything appeared to be in order, and still ran splendidly on the stand, especially when going fast. The trouble was found in the trembler blade being broken, and when the cam acting upon this was moving slowly no connection was made. **Moral**.—Always carry a spare trembler blade. Of parts that gave no trouble or were not forgotten, I have not mentioned. The above Instances are taken from a diary when I □ðrst commenced motor cycling, and now, owing to practice and improvements in construction, I laugh at the novice in trouble, but still get into trouble myself, but only for a minute or two. The □ðnal moralis, if you take up motor cycling, be determined to master the details, and you will □ðnd it the □ðnest means of locomotion you ever touched."

GEORGE WYMAN MADE the □ðrst motorised crossing of the USA on a 1¼hp 200cc California. The trip from San Francisco to New York took him 50 days, including a □ðve-day break in Chicago while he waited for a replacement crank (he later wrote of Chicago's "insect-infested hotels, drunken citizens and shady merchants"). Inevitably Wyman had to make running repairs; as he neared the end of the trip the California began to disintegrate. He later admitted that he "felt like shooting his mount full of holes and abandoning it". Eventually the engine was beyond repair. Fortunately Wyman was a champion bicycle racer—his exploits included cycling round the

coast of Australia—so,undeterred, he pedalled the last 150 miles in time to attend the innaugural meeting of the Federation of American Motorcyclists. For the full story of his epic trek have a look in features list.

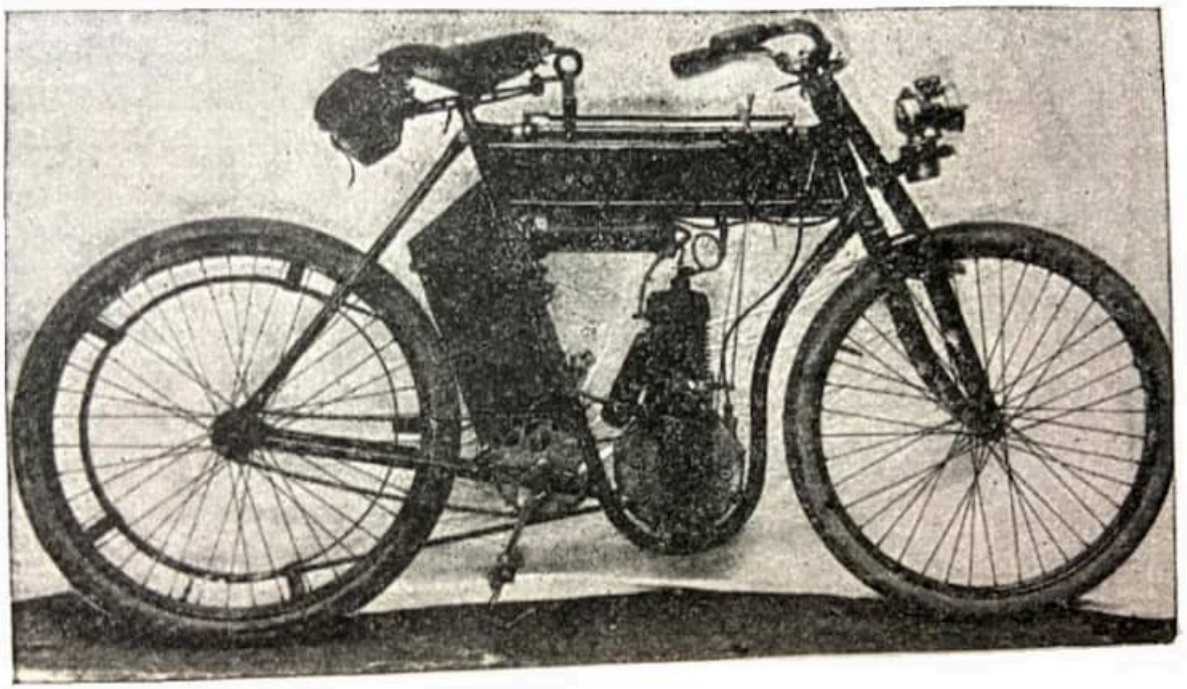
George Wyman's achievement was almost forgotten for many years.



Just as The Motor Cycle was getting under way in the UK, The Motorcycle Magazine was published in the USA in time to sponsor George Wyman's epic trans-continental run, which it covered in its □ðrst four issues. Sadly, it only survived until 1906.

MOTORCYCLING & MOTORING reported: "The following is an account of an interesting motor-bicycle run accomplished recently by Mr HB James, of Melbourne. The roads out in the open country are of the worst description, and the performance is highly creditable to rider and machine The route was from Melbourne to Hamilton, via Geelong, Camperdown and Caramut. The rider started from the Melbourne General Post Oïice at seven in the morning and reached Hamilton at 4.30 in the afternoon—a distance of 204 miles—this being better time than is accomplished by the mail train. A return was then made towards Camperdown, and at the 12th

hour 243 miles had been covered. Out of this time one hour 54 minutes must be deducted for stoppages. The last stretch of 165 miles home was run during the night, and at seven next morning the rider had reached a point three miles on the Melbourne side of Lara, having covered 460½ miles. Deducting four hours 12 minutes from the 24 hours for stops, the net remaining time was 19 hour- 40 minutes, which works out at 23½ miles an hour all the way. The photo shown will give a fair idea of the machine used, and the following are some details: The motor used is a local production (excepting the De Dion aluminium □ðywheelcase), manufactured by E Beauchamp, of Melbourne, with a 2 5/16 bore by 2¾ stroke, and 24lb weight □ðywheels. An atomiser somewhat after the Carlton principle provides the carburation—which is □ðredbyan electric spark—timed by a positive make and break contact. An EIC sparking-plug was used, and gave every satisfaction, the plug not needing cleaning during the 600 miles' ruts. A Dow coil was □ðtted, in conjunction with four No 'o' Obach dry cells, which still gave a third of an inch spark after the ride. Although the engine became very hot through continuous running during the hot portion of the day, the Vacuum Oil Co's No 5 Mobile oil gave perfect lubrication. Transmission of power (gearing 1 in 5) was through an inch □ðatbelt, constructed from two strips of English leather sown together by raw hide laces. Dunlop 2 inch motor tyres were □ðttedtothe machine, and although they had covered. some thousand odd miles previous to the ride, they required no touching nor pumping during the day's ride, despite the. rough and stony nature of some of the roads. The quantity, of petrol used on the trip was 9½ gallons, but fully three gallons were lost on the road owing to supplementary petrol rank (which □ðtsonbackstay under saddle) leaking. The ordinary consumption of petrol by the . motor averages about 80 to 90 miles per gallon, which quantity is carried in petrol tank that □ðtsbetweenthetop stays of the frame. The complete weight of the machine is between 150 and 1601b, when petrol, tool kit, etc, are □ðtted, so that it will be seen that the machine does not err on the light side; in fact, it is Mr James's opinion that no machine under 100lb is suitable for use on their roads. The majority of the machines imported are too light he thinks."



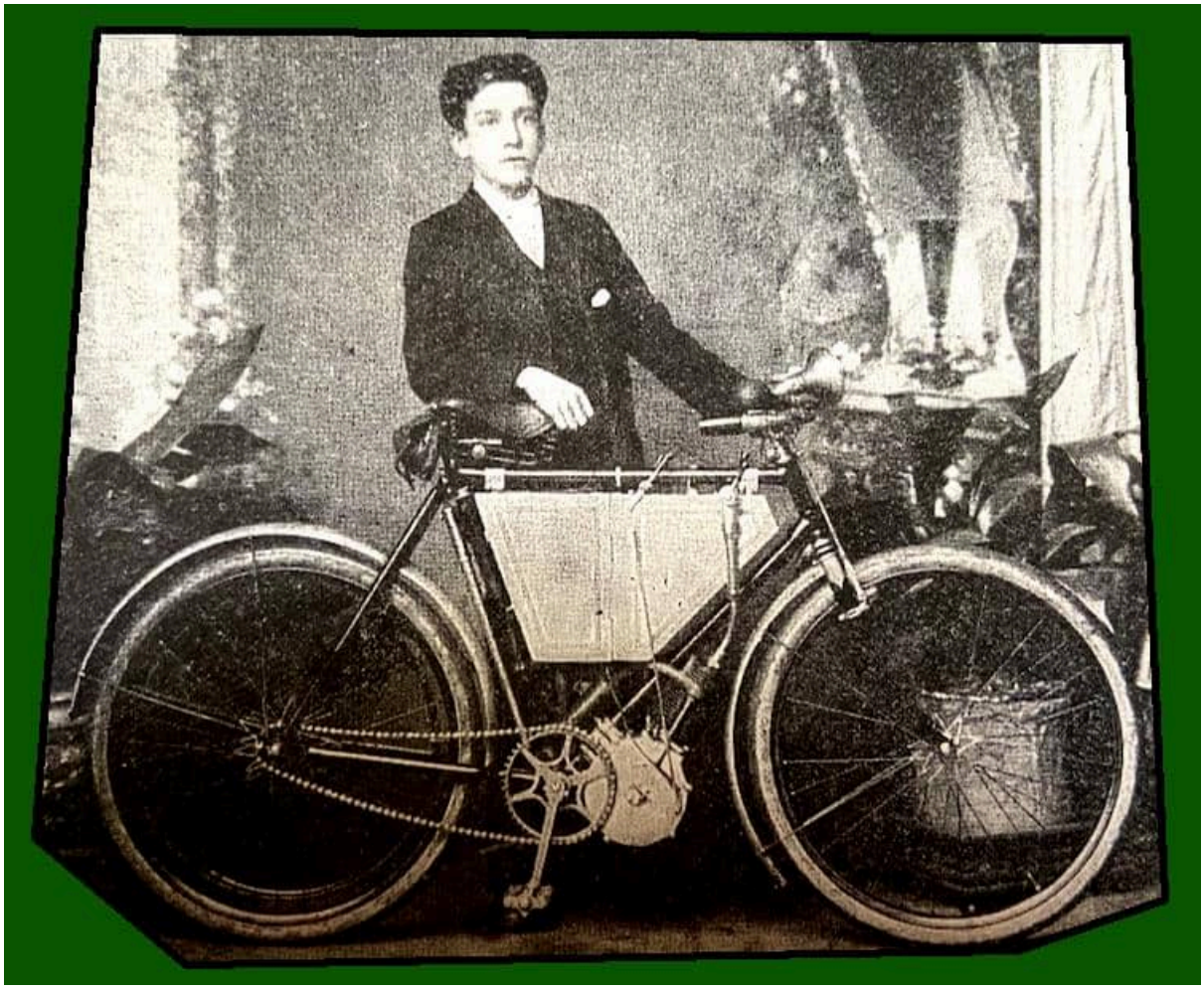
"Motor-bicycle referred to in this article." It covered 243 miles of rough country at an average 23.5mph.

YOUCAN'TRUNa workshop without tea. Teabags of a sort date back to 8th century China but just a week after the □ðrstissueofthe Blue 'Un, over the pond a patent was issued to TGLawson and M McLaren for " a novel tea-holding pocket constructed of open-mesh woven fabric, inexpensivelymade of cotton thread". So at a stroke chaps fettling his hogbus could take a break and, as well as a lungful of old navy shag, relax with a bike magazine and a cuppa. Truly, that week was the launch of the modern age.

All hail the inventor of the teabag!

"WE GIVEA PHOTOof Arthur Herbert Price, of Willow Grove, Plaistow, and the motor-bicycle which he has made for himself," Motor Cycling reported. "Young Price, who is the son of an engineer, is □ðfteenyearsofageand has inherited his father's love of mechanics. He bought a set of castings and worked them up him. self. Then he bought a Minerva tank with its □ðttingsand □ðttedopthewhole machine. Thework occupied seven months of his spare time, and with the idea of teaching him the value of independent research, his father told him to '□ðndout'

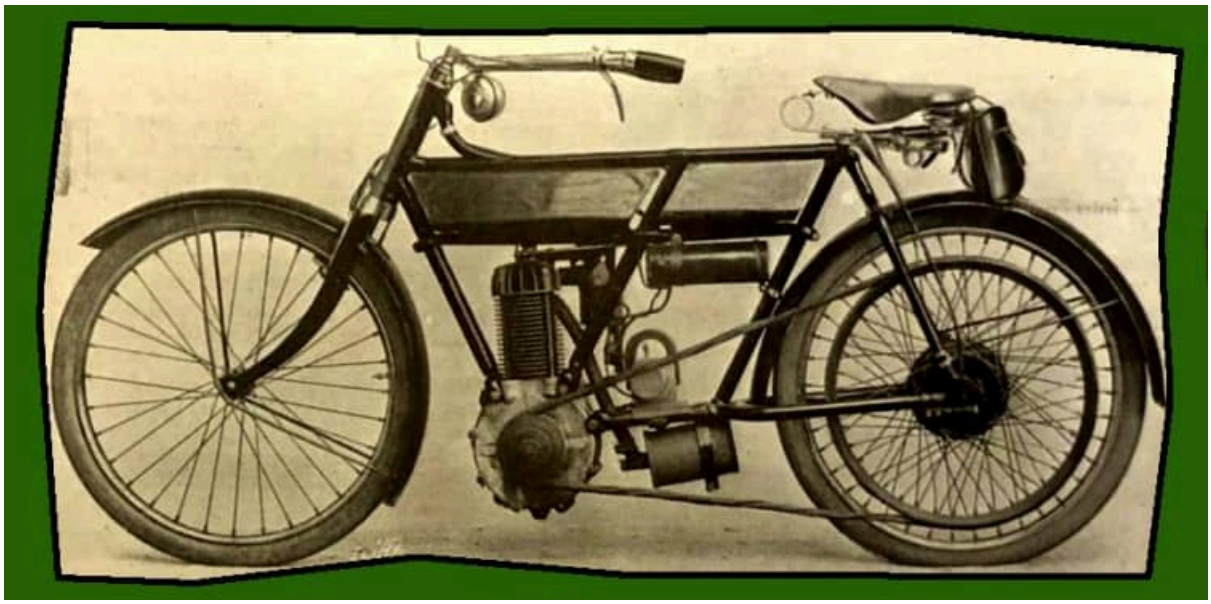
whenever he asked for help or information. That he did '□ðndout'wasproved when the machine was complete, for it ran well from the very start, and has given its youthful and clever owner considerable pleasure."



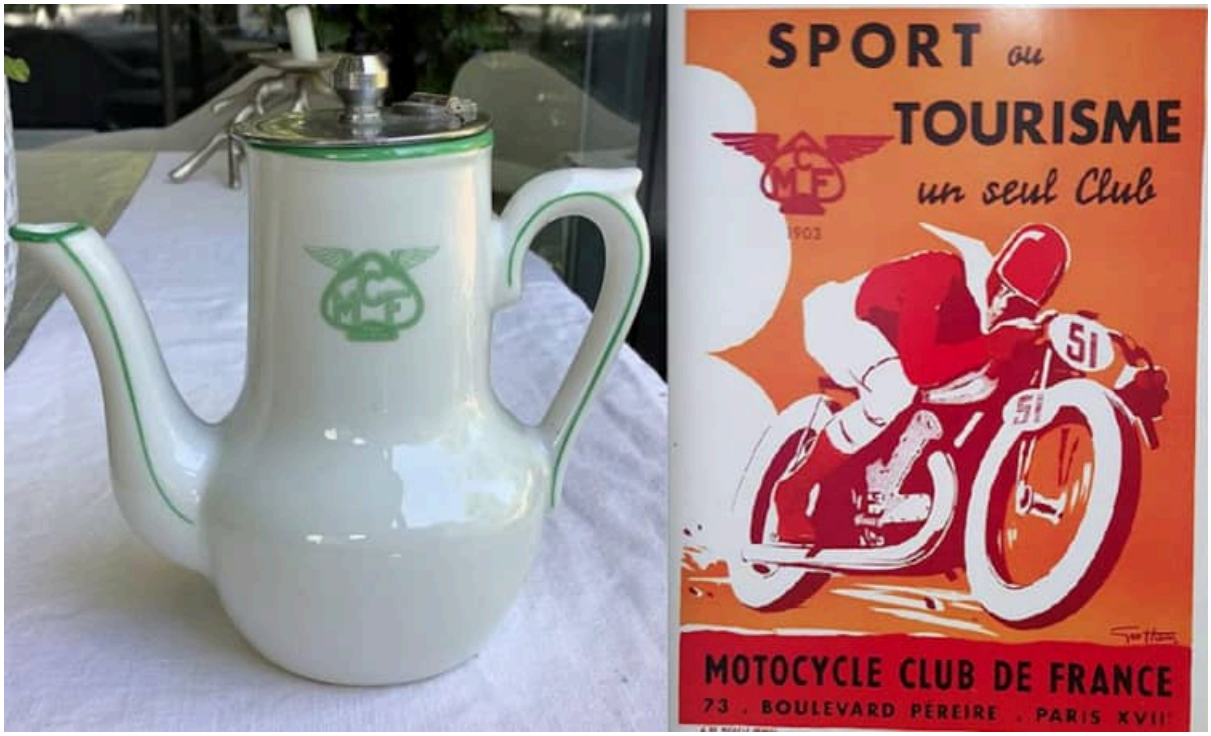
"Arthur Herbert Price and the motor-bicycle which he has made for himself."

"MR AW WALL, OF GUILDFORD, has made a motor bicycle from his own designs which presents some original features. It will be noticed that the machine is of great length, the frame being not only very long, but very low, this last result being partly obtained by setting the top tube almost in a line with the bottom of the head. The top of the head is stayed by a curved strut. Careful inspection of the illustration will reveal the fact that the horizontal stay member is clipped on. This is done with the object of providing a ready means for □ðxing the tanks, which are grooved top and bottom to receive the frame members. The tanks are put in position, with the upper grooves engaging the top tube, and then the detachable stay, which is built up of D-section tubes arranged face to face, is pushed up into the grooves on the undersides of the tanks, and is clipped on. A 2¾hp motor of a well-known pattern is employed, and no pedalling gear is □ðtted. The large belt pulley, however, is mounted on a very ingenious clutch. This clutch is of the double conical type, one part being on the pulley, and the other on the hub of the road wheel. A transverse key working in a cross slot in the hollow wheel axle controls the part of the clutch carrying the pulley, and this key is operated by a pin passing through the axle. At the outer end the pin is connected up to a hand lever, which will be noticed running up by the saddle stay. The end of the lever is fulcrumed just below the wheel axle, so that the rider can control the clutch to a nicety. Magneto ignition, spray carburetter, and belt drive are employed. Both the

saddle and the handles are carried very far back, and we can quite believe that the machine is a □ðer."



Years before the Wall Autowheel (you'll □ðnditin1909) AW Wall debuted with a conventional motor cycle.



The newly formed Moto Club Francais was clearly too chic to use new fangled teabags, witness this elegant théière with its infuser so they didn't hgave to mes about with strainers on clubnights.

"THE MOTORCYCLE has been developing in France almost concurrently with the automobile. By 1895 there were several on the market, the □ðrstindatebeing the Millet with four cylinders revolving round the rear hub. Then came the Dalifol steam bicycle, which ran with wonderful smoothness; but the system was not altogether conducive to the comfort of the rider, whose feet rested on the furnace, and the chimney, into which he occasionally dropped pieces of coke,

rose conveniently above the top tube right under his nose, while he had to stop every few miles to replenish the water tank…Mr HO Duncan introduced that equally wonderful Hildebrand and Wolfmuller bicycle…but very few seemed to have the acrobatic skill necessary to mount the machine. The desire for pacemaking bicycles induced Pingault to devise his electric two-wheeled machine, but batteries of accumulators did not prove satisfactory on bicycles, and electricity has gone the way of steam. The □örst practical bicycle was the Werner, originally with tube ignition; but the machine was looked at askance until electric ignition was adopted, when the machine took up the position which it has occupied ever since."

"IT IS NOW CLOSE UPON ten years ago that motor bicycles were □örst turned out in France—not, of course, upon a commercial scale, though this was not from any want of enterprise on the part of the inventors, who did their best to make their novel, and in some cases extraordinary, bicycles popular in this country; but, despite their short-comings, the Millet, Dalifol and other bicycles, which are nowadays merely memories of a historical past, represented in any event the beginnings of what has now become a recognised industry; but it is only within the past year that there has been any serious attempt to supply the growing demand which sprang up for motor bicycles as soon as their performances in the various automobile races showed that they were really practical machines."

"The new Werner Motor Cycle Factory just completed. Our view shows a portion of the machine and □öttingshops."

Triumph set up a German subsidiary, Orial TWN (Triumph Werke Nürnberg).

DOTWAS launched in Bradford; the initials stood for 'Devoid Of Trouble'.

THESUCCESSofHumber's two previous models (in 1902) led on to the development of new machines: 1¾hp and 2¾hp solos, a 2¾hp tricar with single front-wheel, and the Olympia Tandem forecar. All has chain drive and were listed in two forms, the 'Beeston' or the cheaper 'Coventry', following Humber's bicycle practice.

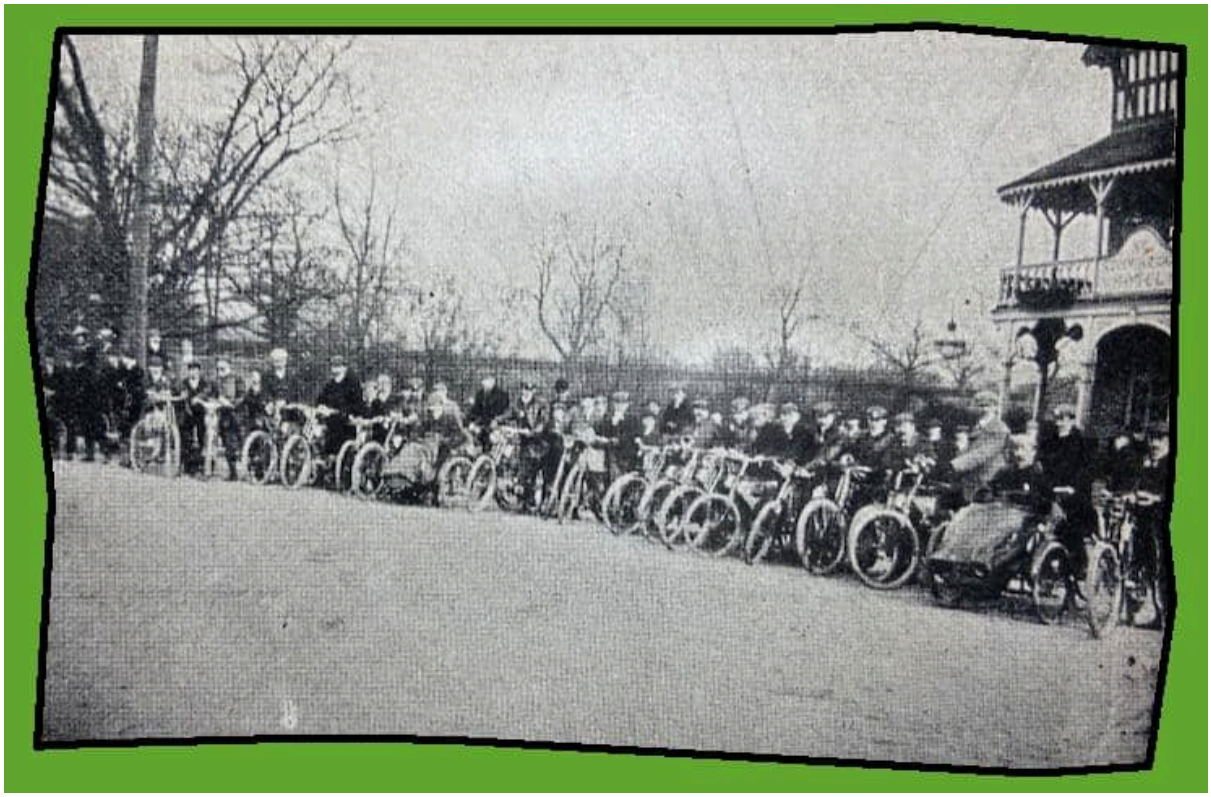
THEAUTO-CYCLEClubwasestablished as the motorcycle committee of the Automobile Club of GreatBritain and Ireland; it is still in business as the Auto-Cycle Union, governingmotor cycle sport in the UK.

THE MCC HELD its □ðrst AGM; during the year membership rose from 20 to 109. Two competitions were held: a two-mile reliability trial, won by WJ Milligan on a Bradbury; and a passenger trial. The club also staged a run from Marble Arch to The Barn, Market Harborough, home of vice-president Edward Kennard JP, who gave them a damned □ðne lunch. The Motor Cycle noted: "Most of the riders were splendidly mounted on high-powered machines. Werners were much in evidence. Mr Van Hooydonk bestrode one of his now celebrated bicycles, □ðtted with forecarriage and a 2½hp Minerva motor. The new Clyde, 2¾hp Simms engine, made a brave show at hills, and under the skilful guidance of the vice-president well maintained its reputation for speed and power." The Motor reported: "On Saturday, April 25th, about 15 members assembled at the Marble Arch at 2.45…The weather conditions prevailing at the start were perfect, the sun shining, and just a gentle breeze blowing…so much attraction did the machines create that the oī icials of the park came to the conclusion that the machines and their owners constituted 'an unlawful assembly', with dangerous intent, and as such requested them to move on beyond the precincts. Several other members joined the party at Barnet, and at 4 o'clock a start was, again made for Dunstable, via St, Albans. Tea was taken at The Saracen's Head, Dunstable. Mr. Kennard said that he was delighted to entertain the club, and hoped it would be an annual visit. He regretted that, owing to the long journey hack to London, the members could only stay for a few hours. A start back was made at 3.15; but the weather conditions went from bad to worse, and beyond Dunstable towards London, the roads were rapidly becoming seas of mud; this. coupled with a pitch dark night and a blinding rain, the return home was a marked contrast to the outward journey. No mishap occurred throughout the run, rut minor incidents, such as punctures, were plentiful."

Reliability trials improved the breed but there was still time for a good feed.

"Mr Edward Kennard JPon his Clyde, demonstrating the ease with which a motor cycle may be ridden." Or, to put it another way, Eddy showing oī to his mates. (But let's not forget that Mr K's missus, Mary, introduced him to the pastime.)

"THE SOUTHAMPTONCOUNTYMotorClub had a very pleasant run on April 25th to Lymington, via Hythe and Beaulieu. Tea was taken at the Londsborough Hotel. The return home was made via Brokenhurst and Lyndhurst. The roads were found in excellent condition. The only mishap recorded occurred to the captain (Mr FP Hill). His inlet valve gave out, and, unfortunately, he had not a spare one at hand to replace it."



“A good muster of motorcyclists—the Birmingham Motor Cycling Club at Stonebridge at Easter.”

“IT IS VERY probable that the experience of the motor cycle match at the Parc des Princes has put a nail in the coffin of professional racing,” the Blue ‘Un reported. And it looked so promising. Rigal had been undefeated all season when Fournier challenged him to a mid-summer head-to-head. The race was duly arranged as the main event of a race meeting; the arena was packed and excitement was at fever pitch. “The match, however, proved to be the biggest farce that has ever been perpetrated on the public. Both men led alternately as □ðrstonethenthe other cut out ignition to let his rival pass; and in the □ðnallapRigal,it is said, stopped his engine and allowed Fournier to win by about □ðftyyards.Fora moment it looked as if the Parc des Princes track was going to see a revival of the good old days when the enraged public were in the habbit of pulling up the railings and seats to make a bon□ðre;buthappily they contented themselves with yelling and howling and trying to get their money back.”

The Fournier-Rigalmatch promised much but delivered sweet FA.

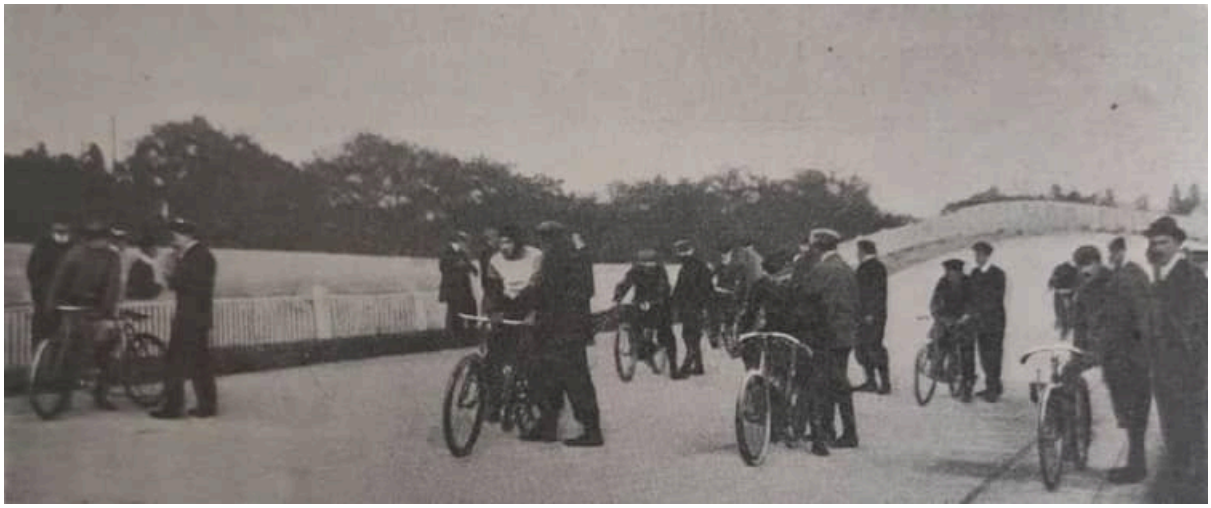
THEFRENCHWEEKLYMAGAZINELaVie au Grand Air (Life in the Great Outdoors) reported: “Last week was taken up by an original event organised by our colleagues at L’Auto (TheCar) at the velodrome of the Parc des Princes. It was the Quarter-Litre Criterium, an event reserved for motor cycles whose cylinder capacity, ie the volume of gas absorbed before the explosion, did not exceed 250cc—a quarter litre…It is known that up to now engines and vehicles have been classi□ðedaccordingtothe total weight of the machine. But the distinction of this weight, which at □ðrstseemedtobe a classi□ðcationofspeed, soon became insuīicient for this purpose. Thus we saw motor cycles of 50kg with engines capable of driving them at 100km/hr, □ðrstinNice and then in Ostend..” Over to The Motor Cycle’s man on the spot: “Twelve started in the □ðnal, namely, two Peugeots, □ðveGriīons,one each Antoine, Bruneau, Knap, Werner, and Lurquin-Coudert. Lanfranchi on a Peugeot easily led until put out by accidents. Result: 1, Knap, gear driven (rider, Mignard), time, 1hr 31min 11sec; 2, Star-Griīon (Champoiseau), 1hr 34min; 3, Star-Griīon (Jacquelin), 1hr 34min 34sec; 4, Star-Griīon (Louvet), 1hr 41min; 5, Star-Griīon (Demester), 1hr 54min. Mathieu on a Lurquin-Coudert, Bucquet on a Werner, and Bonnevie on a Star-Griīon also □ðnished. Theobjectofthe French motor cycle trials was principally to ascertain the advantagesof the diīerent systems of transmissions by placing the machines on an equality as regards motive power: but not the leant surprising result of these tests was the power which makers got out of their engineswith the capacity to which they were limited. Several engines were running at 2,500rpm and more; but further enquiries show that this is below the mark, as several motors ran at 3,200 and even 3,600 revolutions. There could be no doubt that during the trials the Griīons and Peugeotswere running extremely fast. Lanfranchi’s engine gavean impression not of a motor pulsating, but of a turbine whirling. Thesefast motors were lubricated with a force pump. Whether this is absolutely necessaryit is diīicult to say, but it is certain that they require very careful lubrication. At one time it would have been regarded as impossible for a motor to run for an hour and a half continuously at more than 3,000rpm revolutions without decomposing the oil; but during the trials there was no trouble whatever

with the motors apart from the ignition and the defective lubrication of one of the Moto-Cardan motors; and on the winning machines being inspected after the race, the pistons and rings did not show the slightest signs of wear. It is thus conclusively proved that these high-speed engines can run for a considerable time, but the trials have not shown whether the same results as regards relative power and speed can be obtained on the road. It would also be interesting to see whether these extremely high speeds are not obtained at the expense of a much higher consumption of petrol. The trial has raised a very interesting problem as to the eīiciency and durability of high speed motors…Coming to the transmission systems, we □ðndonanalysingthe machines that there were 56 belt-driven bicycles, 14 with chain transmissions, four Moto-Cardans (bevel drive), and three direct spur-driven Knaps. It is much to be regretted that the chain was not represented to the same extent as the belt; but on looking at the results of the trials, we can perhaps detect the reason for the partial eclipse of the chain. The □ðrstthingtobe noticed is that none of the chain-driven Peugeots were able to □ðnishtheirheats,while the belt-driven Peugeot of Lanfranchi beat the record for the hour. The question, therefore, may be raised whether the chain is at all suitable for very high speed engines. The bevel gear also had very bad luck. It showed up remarkably well all through the trials, and only failed through accidents. But for these it would undoubtedly have shown up in the □ðnal.Theracehasbeen a triumph for the ideas of M. Georgia Knap, who has for years made a special study of the motor bicycle, and has applied these ideas in a way to produce a bicycle of the simplest possible form. The Knap won because there was really nothing to get out of order. It did the laps. with the regularity of clockwork, and wore down machines that were perhaps faster, and □ðnallyvanquished the favourites with their high-speed engines. some of whom were going much less satisfactorily in the □ðnalthantheydid in the heats. In the case of Demester (Star-Griīon) at least this was because he fried to run his engine at a still higher speed than before in the hope of beating Lanfranchi's record on the Peugeot…Itcannot but be admitted that the winning in succession, and within such a short time of each other, of two such important events as the Haustgen Prize and the Criterium du Quart de Litre, is a tremendous score for the direct gear drive and, what is more, for the designer of the winning machine, Mr Georgia Knap. This will be all the more apparent when it is said that 50 of the best French makes were represented in the Criterium trial. Mr Georgia Knap is one of the most skilful French motor experts who has been working for some considerable time past at the production of a direct gear-driven motor bicycle in which he seems at length to have been completely successful. The engine in this machine is □ðxedtothe back stay cf the bicycle frame, and geared direct on to a spur wheel on the rear driving wheel, a □ðexiblecouplingbeing at the same time provided between the gear and the hub by means of spiral springs placed inside the spur wheel, so that any sudden impulses of the engine are taken up by the resistance of these springs."

“For a complete veri□ðcation,theenginehad to be dismantled…and was then carefully sealed to avoid any subsequent modi□ðcation.”

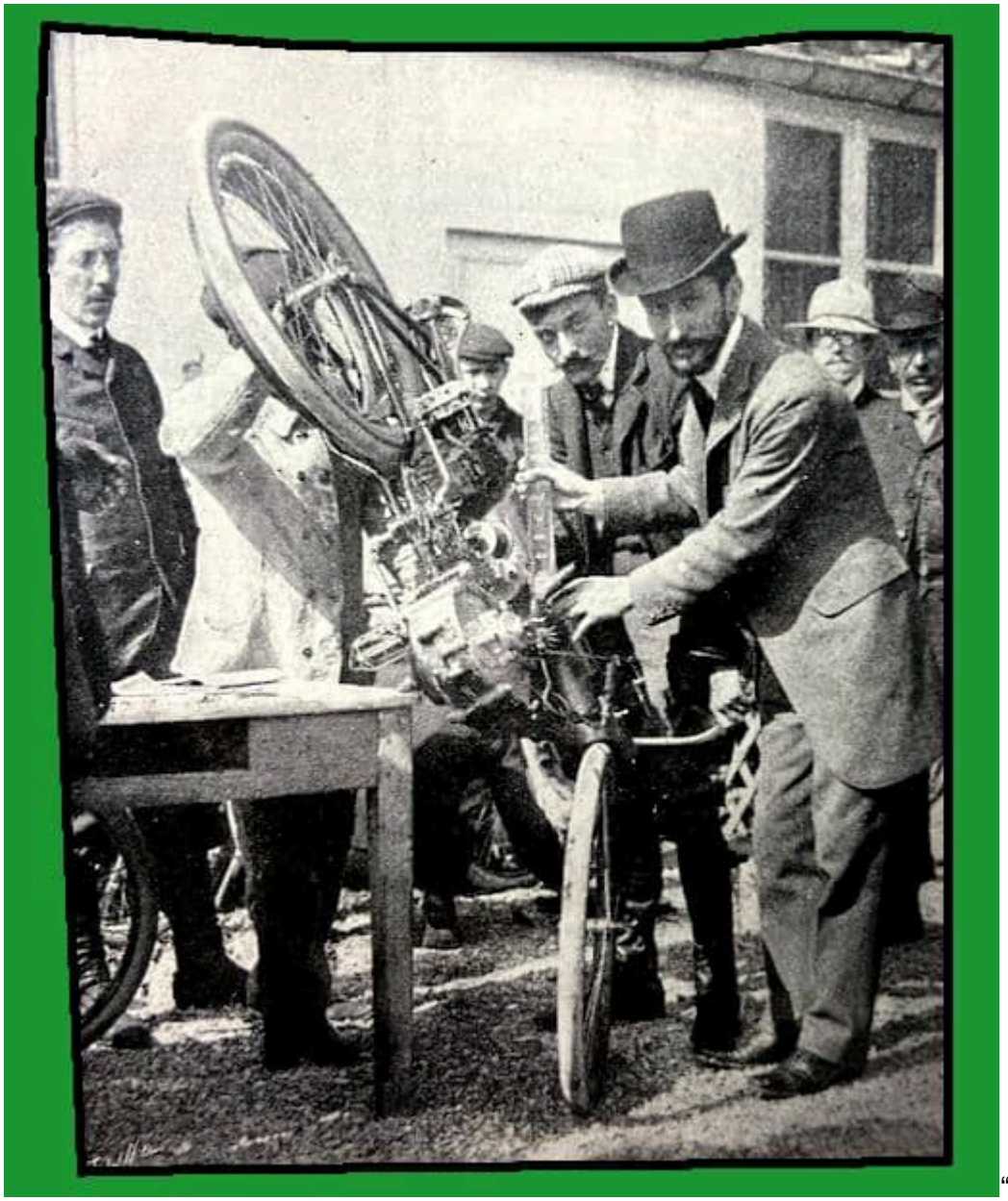
“Before the start, the competitors were weighed and their weight was not to be less than 75 kilos. (Right) If they did not reach this, additional weight was added, for example by □ðttingthem with a lead pipe as a belt.”

“To avoid the chill, the competitors had to dress up in costumes worthy of the Charcot expedition, such as that of Millo” (Jean-BaptisteCharcot led the 1903-5 French antarctic expedition). The balaclava looks snug; gloves might have been a good idea too.



“The start of a round of the Criterium du Quart de Litre at the Parc des Princes velodrome.”

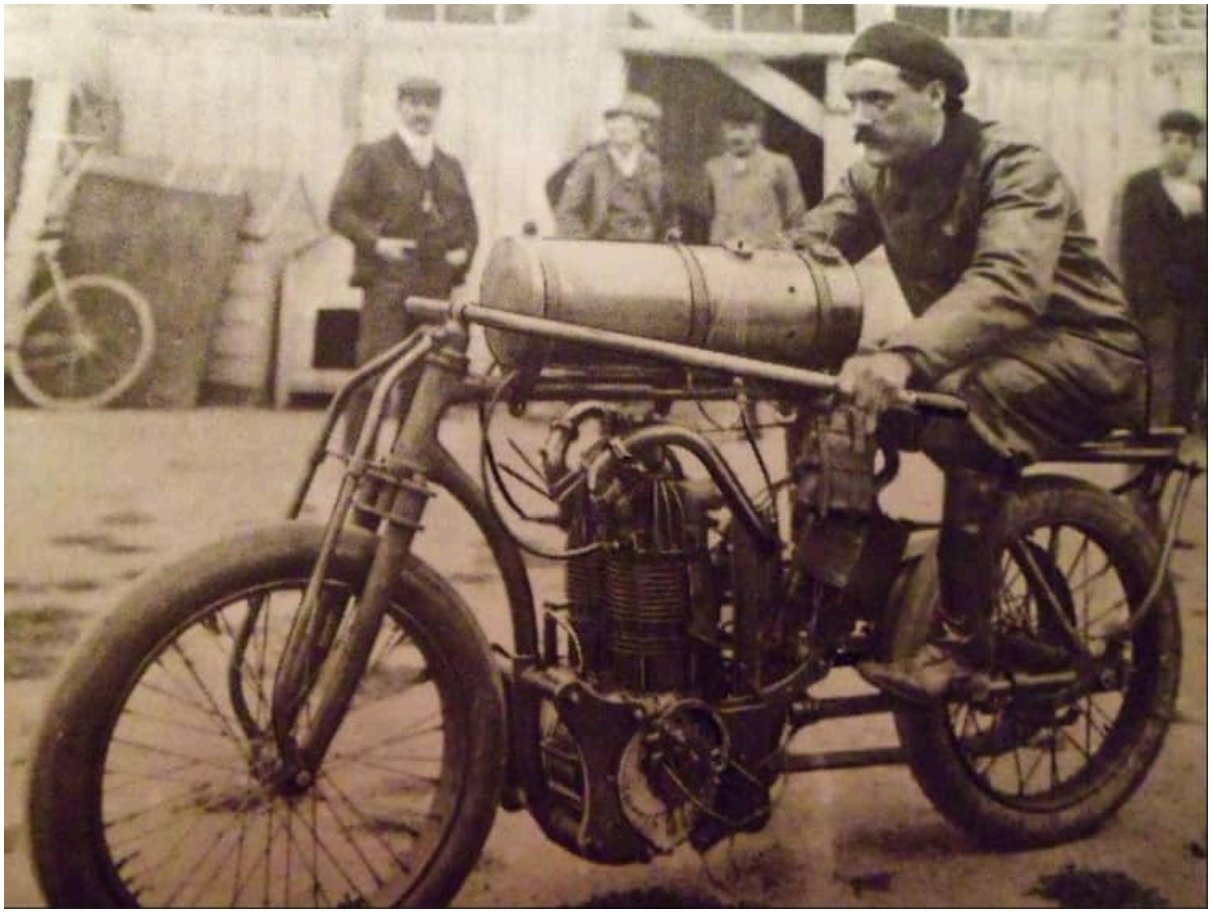
“Start of the □ðnalwiththetop two from each of the six rounds.”



"Testing the cubic capacity of the motor cycle engines in the French Reliability Trials."

ACCORDINGTOA CONTEMPORARYnewspaper:"Theastonishing speed of a mile a minute was attained by Cissac, the French rider, on the Buīalo track, Paris,recently, under circumstances which are somewhat amusing. Marius Thé,the wonderful successful motor cyclist, was defeated by Cissac in a race for motor bicycles, but, feeling dissatis□ðed,straightawayissued a challenge to all and sundry. On the following day, while he was enjoying an after-dinner siesta, Cissac burst into his apartment, and, throwing 200 francs on the table, exclaimed, "I'll take you on. Cover my money. We will run the race now, within 10 minutes." He was not prepared just then, but Anzani, another rider, obtained permission from Théto use his motor bicycle, covered the deposits, and the combatants forthwith adjourned to the Buīalo track, followed by an excited throng, amongst whom was Major Taylor. Sixteen horse-power motors were used. A terri□ðcpacewasset, the spectators, Major Taylor especially, becoming wildly excited. After a few laps had been run, Anzani, seeing his opportunity, shot down in front of Cissac, who in turn was obliged to go up the banking; Then he let his engine out, and covered three miles in 3min 11 sec, eventually winning the match. After claiming the 400 francs, he and his friends repaired to a

cafe, where he regaled them with champagne. Theleg-driven bicycle continues to get faster and faster, so much so that in the light of to-day the attainment of a mile within the minute does not seem to be without the realm of probability. As the best judges admit, it is almost entirely a matter of a good man and gilt edged pacing, and some day the right combination will be struck and the wonderful feat accomplished. It is interesting to recall that it is only a little more than 20 years since the mile was ridden in 3min, and less than 10 years since JSJohnsonput the record at 2min. Only last month Walthour rode the last mile of □ðveinlmin12sec. Thepresent record for the mile 1 min 16sec, held by Coete. Clearly Cissac had a need for speed!"



Marius Thé,"the wonderful successful motor cyclist", pictured at Parc des Princes aboard a two-litre Buchet pacer.

…and here’s the mighty Buchet with a diminutive fuel tank behind the seat and dropped bars, apparently set up for high speed track work. Theforks look decidedly fragile, don’t you think?

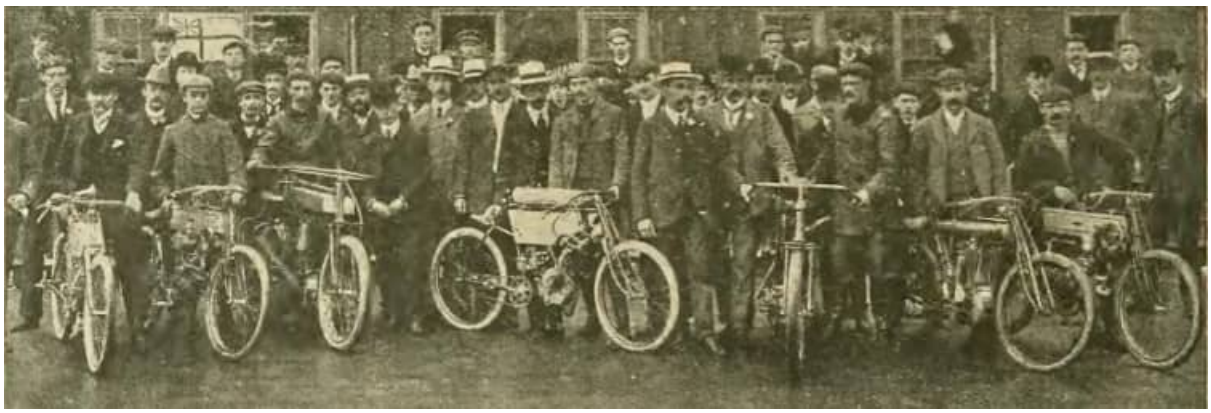
A thoughtful study of Henri Cissac.

“WE THINKTHATmotor cycle manufacturers should be careful into whose hands they place their racing machines, and if they allow powerful enginesto be taken on the road they should see that they are □ðttedwithsilencers. While out last week end in the suburbs we met more than one maker’s amateur in full career, whose method of progressionand governingor control of the machine consisted of switching on and oī. Fourreports similar to those produced by railway fog signals were suīicient to carry one of them through a crowd of people coming out of church, and the audible remarks passed on motor cycling were not by any means calculated to improve the welfare of the sport. If these men must take path racers on the road their employers should see that before being used for such a purpose they are □ðttedwithsilencers. Thereis nothing particularly heroic in scattering a congregation by means of a succession of rapid reports, and then switching oī and on again.”

A HOTTOPICfor debate was the virtues of automatic vs the mechanical inlet valves pioneered by Mercedes in 1901 (an 'automatic' was in essence a spring-loaded □ðap).

French engineers Edmond Fouché and Charles Picard developed oxygen-acetylene welding.

"Now that the surrey magistrates have decreed that six miles an hour is an illegal speed for a motor cycle drawing a trailer, it is not unlikely that they will next turn their attention to the pedestrian. Cases of 'furious walking', perhaps, may next □ðgureonthecharge streets.



Canning Town, after a hard day's racing: Parry (Minerva), Brundall (Humber), Cissac (De Dion), Martin (Excelsior), Therey (Buchet), Tessier (Bat) and Leonard (Humber). Harry Martin won the □ðve-milehandicap, setting one- and □ðve-milerecordsin the process.

Crundall's Humber was on winning form at Canning Town (the sloper engine was made under

licence from Phelon & Moore). The Motor Cycle proclaimed: “At the present moment JF Crundall is certainly the crack motor cyclist of the hour. His recent splendid performance at the Canning Town track is little short of marvellous. If the tyres on his racing motor cycle will last through an hour’s trial, Crundall, we feel sure, can put the record for the hour at over □ðftymilesatany moment.”

“Starting for the Five Miles Handicap at Canning Town, Crundall, the winner, is on the inside.”

“Preparing the motors outside the ‘Press Pen’ at Canning Town.”

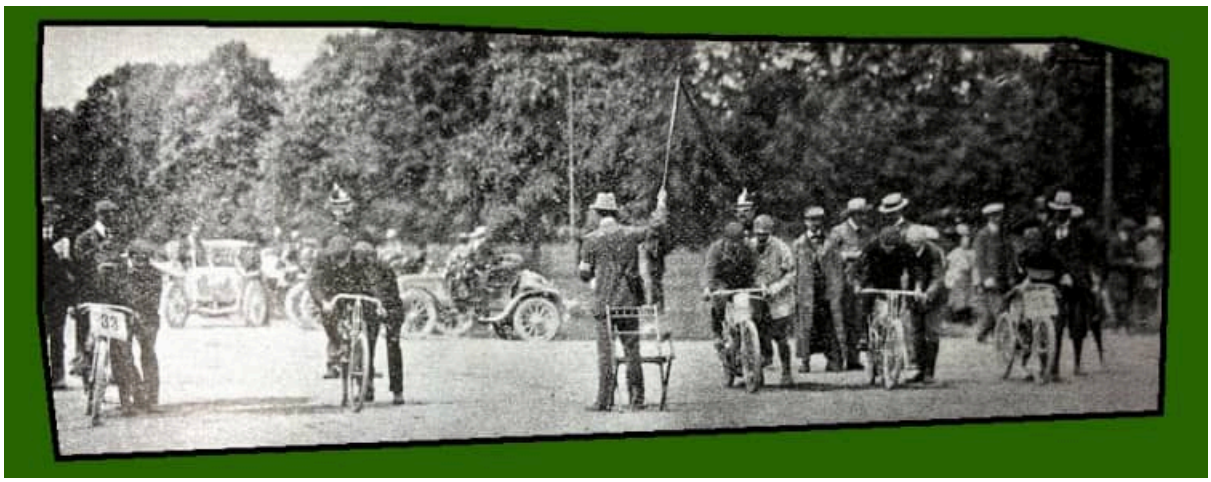
Enthusiasts inspired by Crundall's exploits on his record breaking P&M could live out their fantasies on the road-going version.

HARRY MARTIN'S SUCCESS—against French and Belgian aces as well as his fellow Brits—earned him the nickname 'The British Bullet'. He was the □ðrstrider to exceed 60 mph on a □ðying kilometre (at the Phoenix Park Speed Trials in Dublin on a 2¾hp Excelsior). At the Gordon Bennett Speed Trials he became the □ðrstrider in the world to cover 60 miles in an hour.. Then he set a □ðying mile record of 58.5sec at Canning Town, where he also set a standing-start mile record of 1min 24.4sec. The Excelsior he rode at Canning Town featured the 8hp, 600cc MMC developed from the de Dion design.

Harry Martin aboard his 2¾hp Excelsior on the Canning Town track. He set standing-start records up to 12 miles (45mph). (Right): Martin passes timekeeper Mr Ebblewaite, generally known as 'Ebby', en route to a one-mile world record of 1min 24⅖sec.

“The world’s motor bicycle record holder, Harry Martin, driving his 2¾hp Excelsior at full speed on the Canning Town track. His mile time from a standing start was 1min 24⅘sec, and his 11 and 12 miles times were 14min 36⅕sec and 15min 58sec respectively, also from a standing start. His machine is a motor cycle, and not a monstrosity, as are so many record breaking instruments.”

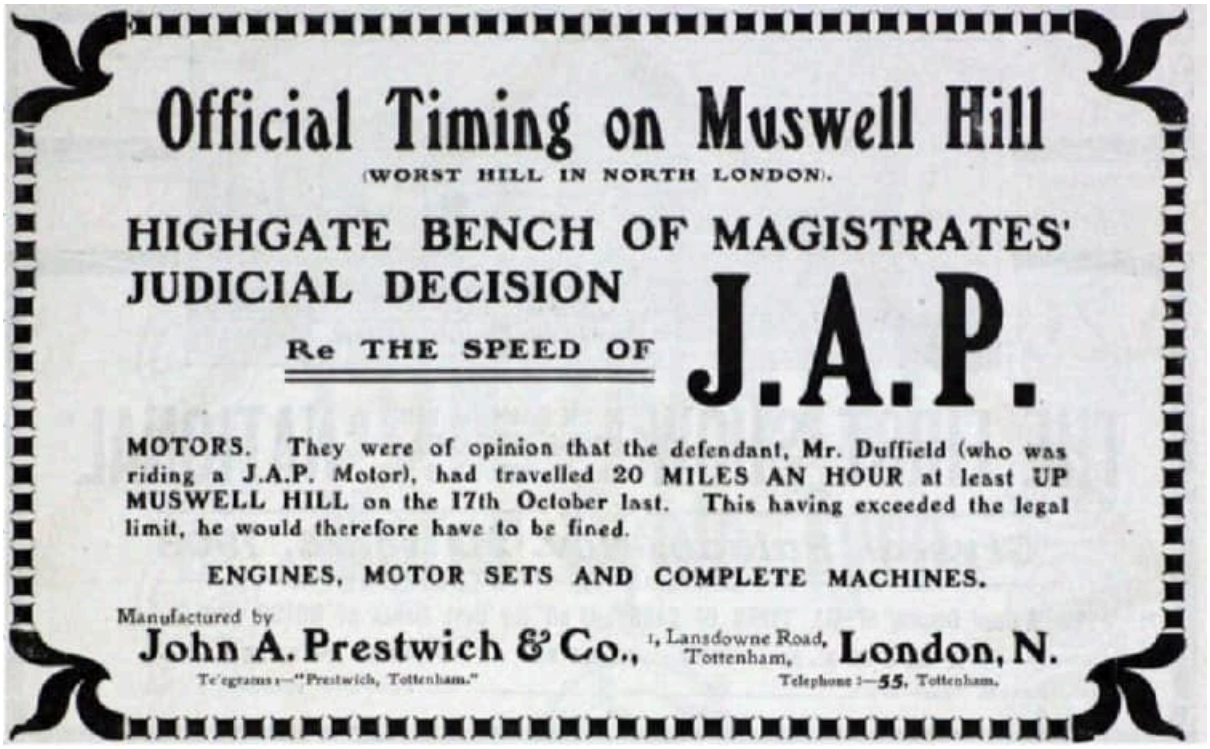
“RESULTSOFTHEPHOENIXPARKSpeed Trials. Motorcycles (full course, 2,853.6 yards). Competitors allowed to pedal for □ðrst100yardsonly. Class A1 (cycles up to 70lb); 1, CG Garrard (Clement Garrard)2min 53⅗sec; 2, Bert Yates (Humber). Class A (cycles up to 114lb): 1, Andre Gommers (Gamage)2min 6⅕sec; 2, JF Crundall (Humber); 3, TC Furlong (Werner). Class B (motorcycles up to 170lb: 1, H Martin (Excelsior)2min 1sec; 2, S Wright (Excelsior); 3. H Prickett (Riley).



“Motor-bicycle speed trials. H Martin (Excelsior), B Yates) Humber), S Wright (Excelsior), WH Burden (Riley), H Prickett (Riley).”

“MOTORCYCLISTShavebeen considerably amused by an appeal made by a Member of Parliament in the House of Commons to the Secretary of State that he would take into consideration the desirability of establishing a force of motor cycle policemen, these men to be employed for restraining furious driving in crowded streets. It is evident that Mr Cathcart Watson, the member in question, is not a practical motor cyclist, and it would appear from the oīicial reply that was given him that this fact was recognised, as it was simply stated that the matter would be left to the discretion of the police authorities. We would be the last to cavil at new uses for motor cycles, but we do not think any good purpose would be served by mounting police upon them in the way suggested, as it appears that the idea of Mr Watson is not so much the prevention of furious driving by horse drivers as the chasing of motor cars. In other words he would check one evil by substituting another, as it stands to reason if the alleged furious driver is to be caught the motor cycle policeman must ride at a higher speed still; and assuming the pace to be dangerous on the part of the motor cars, that of the policemen will be still more dangerous. As things are at present we do not think any good purpose would be served by the use of the motor cycle in crowded thoroughfares by policemen. On less frequented roads, of course, it has great possibilities, whether ridden by a police oīicial or by any other person who is desirous of expeditiously getting over the ground.”

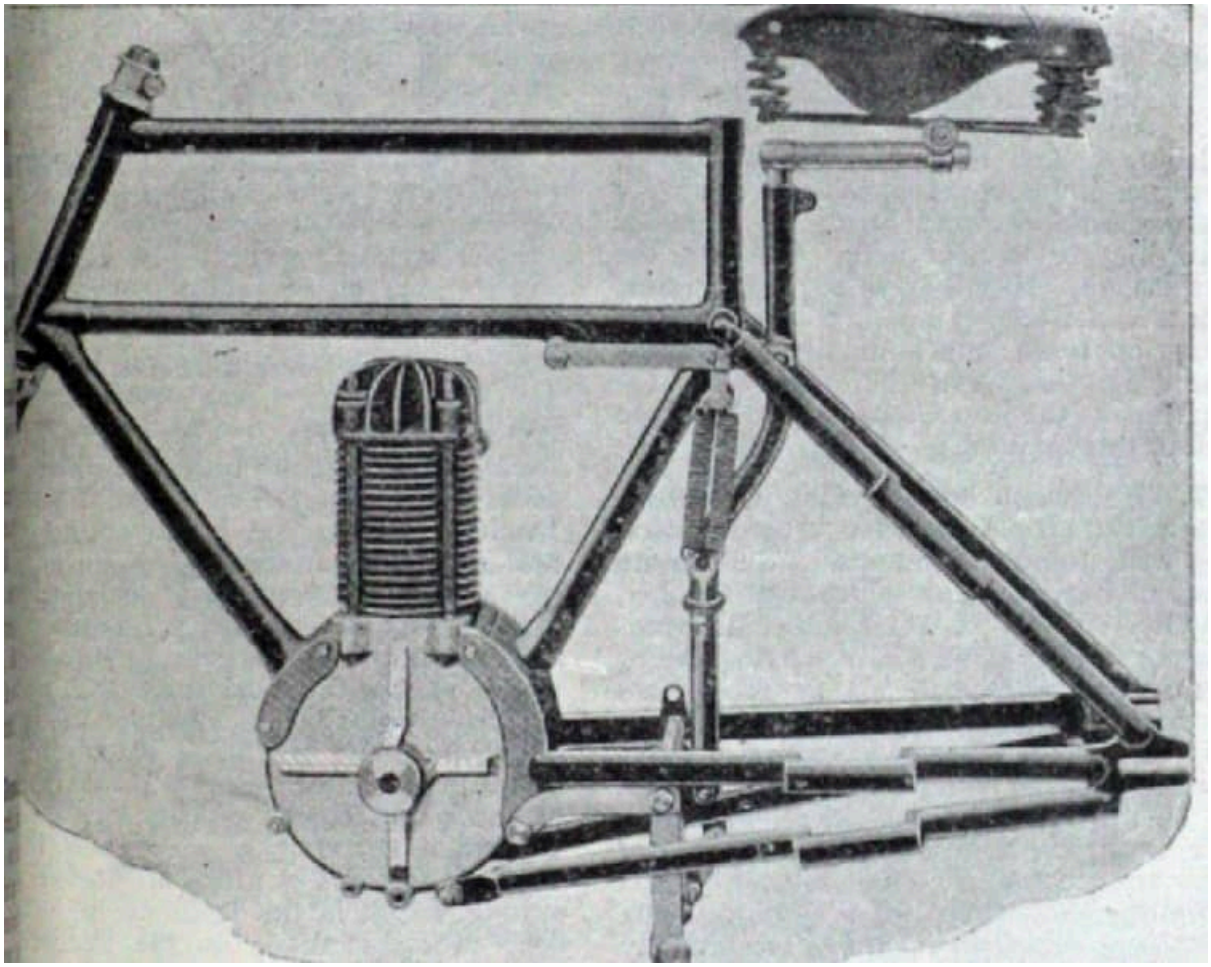
The Rex MCC, an early example of a one-make club, at the Swan’s Nest Hotel, Stratford-on-Avon.


Official Timing on Muswell Hill
(WORST HILL IN NORTH LONDON).
HIGHGATE BENCH OF MAGISTRATES'
JUDICIAL DECISION
Re THE SPEED OF
J.A.P.
MOTORS. They were of opinion that the defendant, Mr. Duffield (who was riding a J.A.P. Motor), had travelled 20 MILES AN HOUR at least UP MUSWELL HILL on the 17th October last. This having exceeded the legal limit, he would therefore have to be fined.
ENGINES, MOTOR SETS AND COMPLETE MACHINES.
Manufactured by
John A. Prestwich & Co., 1, Lansdowne Road, Tottenham, London, N.
Telegrams:—"Prestwich, Tottenham."
Telephone:—55, Tottenham.

JAPlaunched a motorcycle, with a BSAframe, sprung forks and its own 3½hp ohv engine. It also published a cheeky advert; one has to wonder if Mr Duīield was consulted about this.

GOODYEARPATENTEDatubelesstyre, but only for cars. A testimonial to Clincher A1 'self-sealing air-tubes', claimed: "Nearly a thousand miles without a puncture!"

BATFITTEDrearspringing; kits were oīered to make rigid forks springy. The Sharp concern even oīered air-springingfor forks and frames.

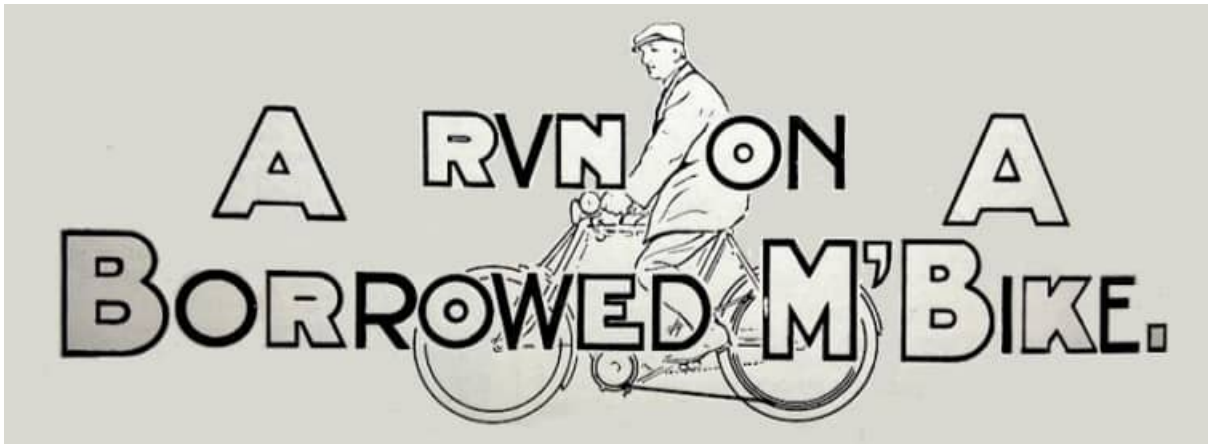


The BAT was ahead of the pack with its patented spring frame.

HAROLD 'OILY' Karslake built his dream bike, sourcing bits from chums and adverts in The Motor Cycle. A few years later he named the beast after Britain's revolutionary battleship: Dreadnought. The frame was ex-Quadrant with a 3½hp MMC engine built to power a BAT trike. It dispensed with pedals; Oily later □öttedatwo-speed NSU transmission. Dreadnought had a successful career in verious competitions and was □örstbike away in the □örstLondon-BrightonPioneer Run in 1930 ridden by George Brough. Oily bequeathed her to the Vintage MCC and she's still ridden to Brighton every year by VMCC members. You can read all about her later adventures in the 1903 features section.

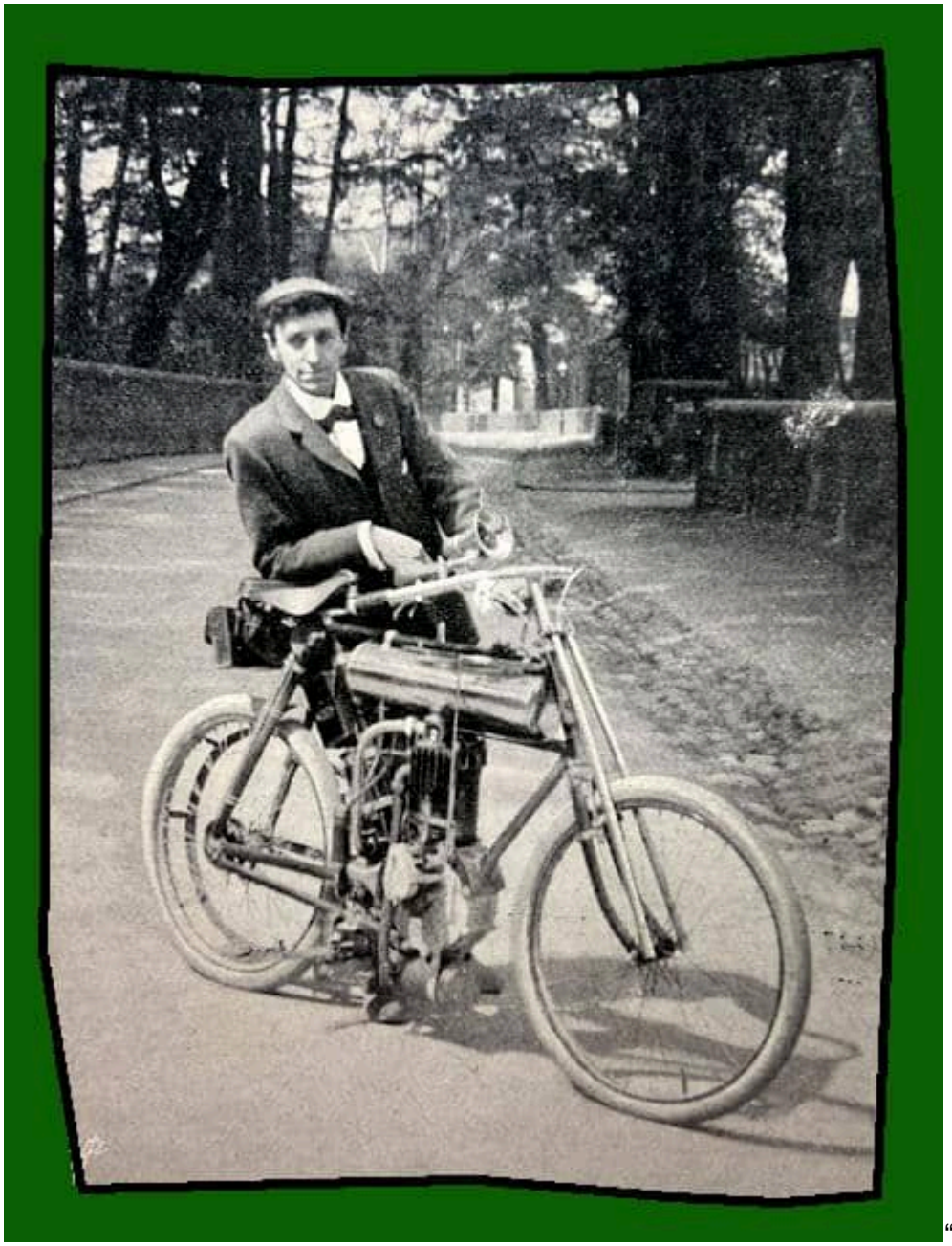
Dreadnought could cruise at 40mph. Oily Karslakerode her to victory in dozens of long-distance trials; by 1911 they'd done about 70,000 miles together; the old girl was still competing in the 1940s.

TOMSILVERmadean end-to-end run on his 3hp Quadrant in 64hr 29min, knocking 1hr 16min of the time set by Edward Arnott the previous year. Raleigh staīer GP Mills designed and made a two-speed box and cut the record to 50hr 46min. [The full story of the End-to End run is covered in the 1911 features section].



"WHIT WEEKANDNOTHINGBUTa push bicycle to ride! Confound that enthusiastic novice who would insist on purchasing my motor bicycle just before the holidays. And doubly confound that kind friend who glibly promised to put a machine at my service, and as readily forgot all about it apparently. But stay! A ring at the entrance bell! The maid announces, 'Please, sir, a dustman wants to see you in the hall!' 'Dustman!' This is not the Christmas-box season—what can be his business, pray? Upon going forward—Ha! ha!! ha!!! so much for motoring togs—the alleged 'dustman' proves to be my worthy friend, who, as good as his word, has brought over his machine for my use for this day only, while he proposes occupying, for a change, a snug seat in the tonneau of a relative's car. Good boy! I give him a hearty reception, a modest amount of

liquid refreshment, and, after listening patiently to his numerous instructions upon this, that, and the other about this particular motor bicycle, I lend him my wife's machine to ride back home on—for I am a reciprocal soul, mind you—and an incongruous spectacle he presents in all conscience pedalling away in his leather rig-out upon a lady's machine. But, bless you! being a motor □ðendhisappearanceis absolutely nothing to him—a sad state of things truly. Petrol is so demoralising. Before starting out I go over the points of the machine. which is practically new. Theengine is a 2hp Minerva, with, of course, the mechanically operated inlet valve; wheels, 26in, with Clipper-Continental tyres; 24in frame; wide mudguards with forward extension piece over front wheel. duplex front forks; twisted belt; Bowden band brake on front wheel, and a back-pedalling'any point' band brake on rear wheel. Now, I am particularly partial to band brakes, but not when operated by back pedalling. I think it much more comfortable and convenient to be able when riding to swing one's feet into any position either backward or forward at will without thinking of the brake.

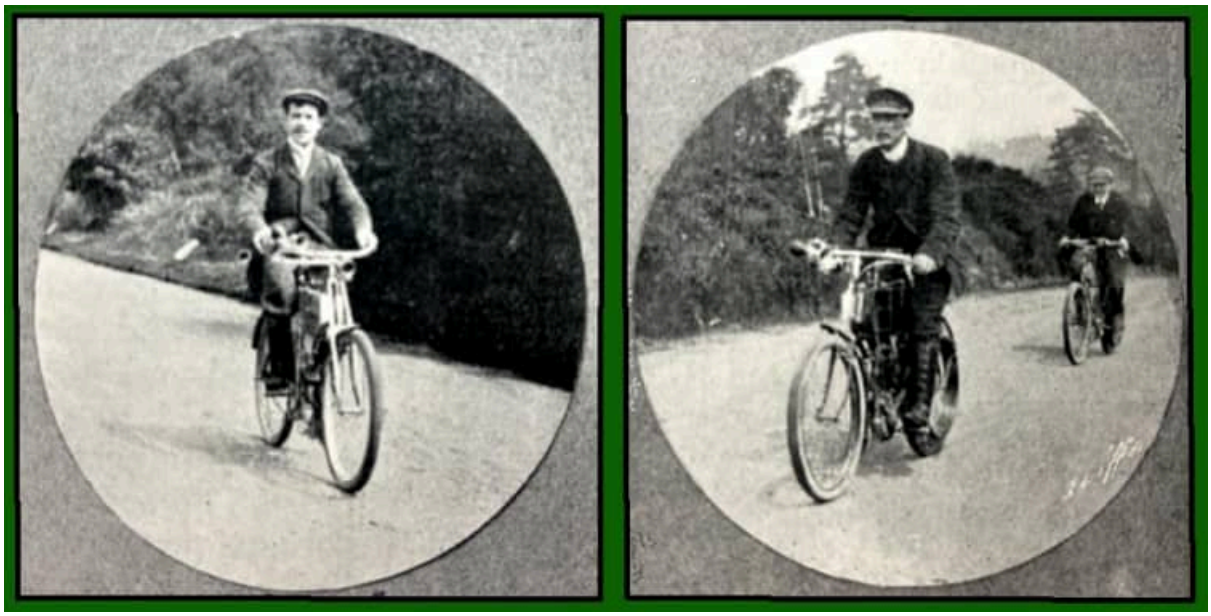


“Mr JEdge, of Liverpool, with his Bat motor bicycle.”

In addition to which one is always able to dismount by the pedal without fear of jamming the brake on hard and skidding the wheel, to the detriment of the tyre,. which can, easily happen. I have seen many an awkward scrambling fall this way, and on one occasion I remember the rider left a portion of his facial cuticle upon the granite kerb. However, we all have our fads and fancies—fortunately so, perhaps. Everything about the machine appears to be in perfect trim. My friend has assured me the accumulator is freshly charged, the petrol tank is full, as the □ðoat rod indicates, and there are numerous spare parts in the toolbag; so I don my coat and gloves and set forth cheerily. Except for a dust-laden wind, the weather is perfect, the sun shining brightly and roads in good order. With switch handle screwed home, connecting plug □ðrmlyin position, and throttle open, at the second stroke of the pedals the bicycle commences to □ðre feebly, although I have not yet touched the lever retarding the spark and actuating the exhaust valve lifter. This indicates a need of adjustment, as it is not a well-regulated exhaust lift that

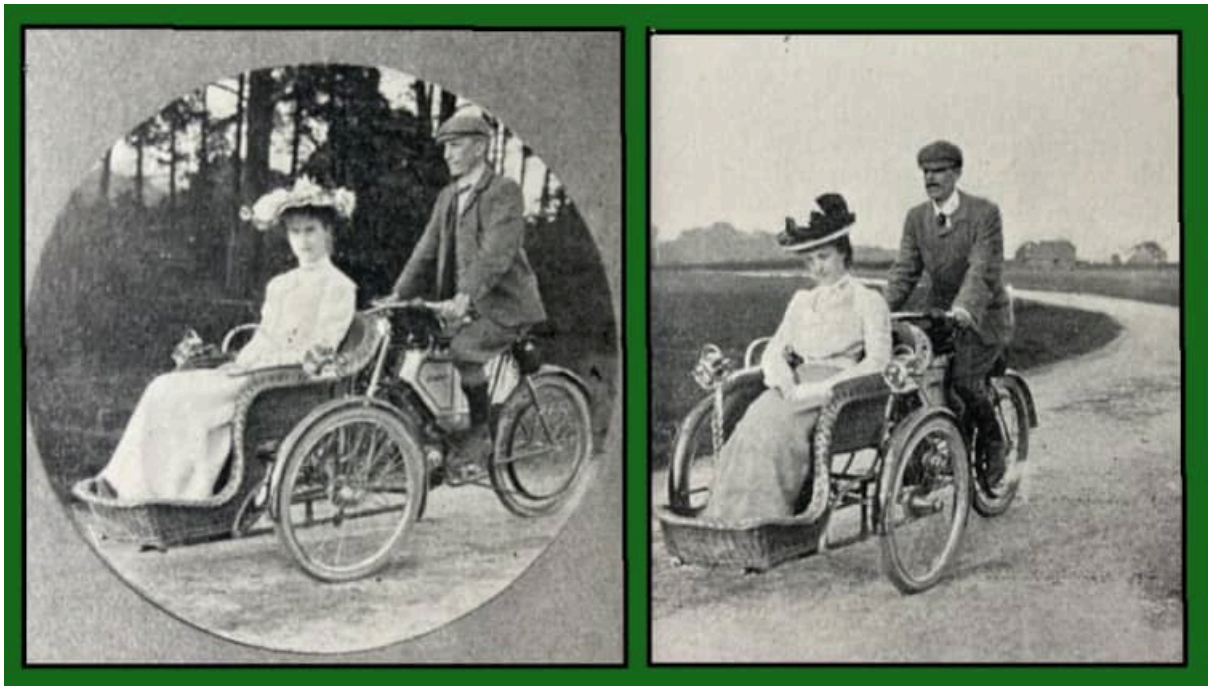
allows suīicient compression in the cylinder to enable a charge to □ðreevenfeeblywithlever right over. I dismount and tinker with this somewhat, but am unable to obtain complete satisfaction. Remounting, in a few minutes I quickly clear the tram terminus at Purley, and bowl along at an enjoyable speed towards FoxleyHatch, at one time one of the most lovely specimens of Surreyscenery, but now, alas! the undulating upland pastures are dotted with numerous villas. But the Philistine builder has been less unkind than usual, and a certain daintiness hovers o'er the place even now. Picking my way at half speed through the new patches of stones, a turn to the right brings Wallington—the home of sweet lavender—into view. Unfortunately, having omitted to advise the good folks of my intended visit, I □ðndtheprevalent odour to be that of □ðshmanure;butlet us not be unduly critical, or people may object to the smell of burnt oil. A □ðnerundownpast the station, through winding lanes, past the Hackbridge Dogs' Home (would that every dog were there), and past Mitcham golf links, leaving, sundry agitated persons in red coats busily occupied in raking among the furze with hockey sticks for mushrooms. More mazy turnings, round some of which awkward contretemps are narrowly escaped owing to the incapacity of the holiday bikist and my inaptitude with the Bowden brake lever which is on the left hand, and unusual with me. Meanwhile, the little engine throbs contentedly along at moderate speed, the spray carburetter exhibiting a commendable attention to business. 'The George' at Morden. In obedience to the 'advance spark' my steed dashes away at an exhilarating speed, and my eyes stream with water owing to the pace and strong wind; but the goggleshave been left behind, so this inconvenience must be borne. Through the Splash. Easynow! The 'Spring at Ewell'. A detour via Hook taking en route the 'splash' which crosses the road at an abrupt turn. Twocyclists call out to me, 'Go ahead! the splash is nearly dry,' Spoofed! I rush forward to □ðndIamplunging through at least a foot of water. which cascades all over me and the machine, while those unveracious cyclists grin hugely. Pushingforward at full speed in order to top the steep hill before me, my mount here proves its climbing capabilities, surmounting the brow without assistance from the pedals and with very slight retarding of the ignition. The road becomes somewhat bumpy, and an unpleasant clang-clang in the tank commences to get on my nerves. Now people are apt to think that, because a motor bicycle is by nature noisy, a little clattering and bangingabout of the accessories can make little or no diīerence to the comfort of the rider. In my case, while I absolutely enjoy the " 'purr' of the engine, any noise, such as a commutator rod rattling against the tank, or the accumulator jumping about, is as irritating to my nerves as the sight of the tax collector. I □ðnd

the ‘clanging’ in question proceeds from the □ðoatinthepetrol tank washing about and knocking against the sides. This is not only damaging to the □ðoatitself,but is likely to cause a leak sooner or later. A little thought, and I improvise a simple cure by passing a short piece of butt-ended spoke which I □ðndinmytoolbag down the top of the projecting □ðoatrod;whenthe cap is screwed on the □ðoatisheld □ðrmlydownand the noise ceases. Through Claygate—aptly named—and out by ‘The Bear’ at Esher on the Portsmouth Road. My ride so far has been a somewhat lonely one, but I □ðndthefamoushighwayalive with cyclists, motor bicycles, and cars galore. Beyond Esher Hill I essay putting a charge of lubricating oil from the oil tank into the crank case; but the pump, □ðttedwitha ‘two-way’ tap is □ðxedontheseat-post tube under my left thigh where it is almost out of my reach and quite out of sight, so I merely succeed in getting my hand smeared with oil. I dismount and inject the necessary charge of lubricant into the engine. The union of the pump tubes is a somewhat bad □ðt,andalot of the oil exudes and makes an unsightly mess on the frame and mudguards; but this is a detail. ‘Horseshoe Clump’, ‘Fair Mile’, ‘Cobham’, and likewise ‘Pain’s Hill’ are negotiated in style, the engine responding to every touch of the levers in a most admirable manner, and I congratulate myself upon my freedom from trouble and worry—two commodities not unknown to the motor cyclist, especially when out on a strange machine. Flying down the road near Wisley Hut, there is a sudden cessation of the explosions, and with some amount of interest I search systematically for my steed’s sudden ailment. M’yes! compression good, therefore nothing wrong with valves! Carburetter □ðoods readily by agitating □ðoat—notchokedevidently.Hullo! no spark at trembler, and naturally enough, for the wire is broken away from a terminal. To remedy this is easy, so I am away again. The famous Ripley—with its discreditable police trap—is.now at hand, so I steady down to walking pace, as do also two cars just ahead of me. As we cross the bridge into the village, a police oīicer, clad in plain clothes and equally plain foot gear,is seen standing with



Waterbury* in hand, and there is doubtless a constable hiding at the other end of the village. But the 176 yards of measured road have no attractions for us just now, and we pass the watchman at 1mph, ironically saluting, while anxiously enquiring the exact time of day. Strangethat we, a spirited, self-governedpeople, pay the police thus to waste their time. Away from this unpleasant scene, and out on the open highway towards Guildford. The pace increases, the cars disappear ahead, and I am over-taken by a morocco-bound, begoggledeīigy. The scarecrow one and I fraternise and exchangecriticisms on motor matters until, becoming

impatient, he leaves me. Guildford, with its old-fashioned gabled shops and overhanging clock, is reached, and halfway down the steep descent I halt for a light lunch. I stay suīiciently long for my engine to cool thoroughly—so much so that I □ðnd my piston stuck fast on attempting to restart. A drop of paraīin, of course, will remedy this at once; but where is the necessary aperture for injection? Missing! What an oversight! True, I can take out the sparking plug or plug bolt in the top of the head, but what an unnecessary nuisance. The plug, however, is removed and replaced, and I start back towards London, branching oī to the right when clear of the 'kidneys'. for 'Merrow', the 'Clandons' and 'Horsley'. Hereabouts my belt is slipping badly, and the engine is racing in consequence on some of the steep shoots, so I run the belt oī the pulleys and give it a twist or two; but getting it on again is a matter of considerable diīiculty, for the stays are built so close to the rim there is no room for the belt to run on at the top in the usual way, and it cannot be got on the bottom because machine will not wheel backwards owing to the back-pedalling brake. However, without loosening the back wheel axle nuts or disconnecting the brake, I manage to force the thing on, although in doing so I notice the engine is forced out of position to one side. Examination shows the clamp nuts to be very loose, so these are tightened up to avoid further trouble. I also □ðnd the oil feed pipe leading from the oil pump to the crank case is actually touching the belt, and as the said pipe is smothered with leaking oil, of course the belt gets liberally anointed also, so this pipe is bent back out of the way. A wild rush down Bookham Hill, a steady climb through Leatherhead, and over Ashtead Common Hill like a bird, to the unconcealed envy of the occupants of two low-powered cars which are scrunching up laboriously. There is no mistake about it—a car for comfort perhaps, but a bicycle for speed and climbing. A sharp look-out for wily bodysnatchers in Epsom town, then away to the right on

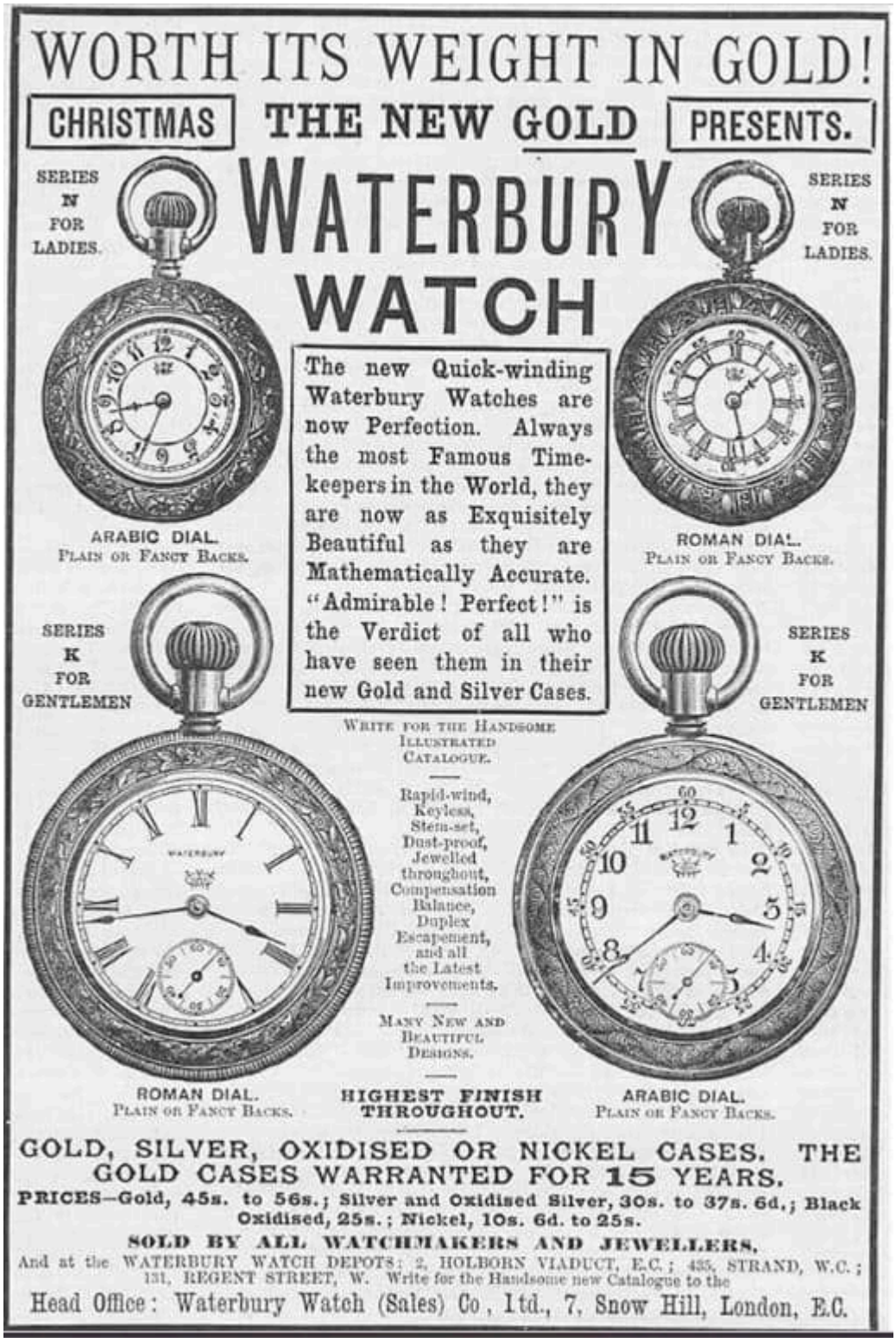


to the breezy Downs, leaving the racecourse on my right, and here presently is Cosmo Bonsor's country seat at Kingswood Warren. A beautiful country this, but a tri□ðedusty just now. A halt on the top of Reigate Hill to admire one of the □ðnest views in the kingdom, a discreet negotiation of the winding descent into the town, and then a magni□ðcent straight away run over the undulating roads to Crawley, where I look in on the Jovial Terry, and imbibe the cup—that is to say, the tea—that cheers; what time a violent storm descends on the place, and as rapidly clears oī. Now

back towards Croydon, bearing away to the right at PoveyCross, near which a □ðeryuntamed horse challenges me to an impromptu game of 'hop-scotch' which I decline in some trepidation, and leave him as he is trying to climb into the sky with the rider's aī ectionate embrace round his neck. Dangerous quadrupeds, these horses. We shall never be safe on the road until they all have to carry a number on an enamelled iron plate 3ft square; for purposes of identi□ðcation. On Earlswood switchback my trusty engine falls unaccountably weak, though □ðring regularly, and I pedal frantically in order to surmount the □ðrstrise. Once over the brow it gathers speed, but at the next incline falls away to stalking pace, and then stops exhausted. This is puzzling. I pronounce a benediction and investigate. Here is the cause right under my nose—the plug in the top of cylinder has jarred loose, and can be turned with the □ðngers. The spanner is a bad □ðt but I manage to tighten the nut, and the engine starts up as strongly as ever. A swoop round Gatton Corner, and the engine again stops suddenly. No need to search for the cause this time, for there is the high tension wire which has come adrift from the coil, dangling on the hot engine. Faugh! An easy repair, so on past the Feathers at Merstham, travelling well, picking op en route a facetious youth on a 3hp mount who enquires if I want 'sewing up'. An aīrmative reply sets him swooping ahead over the hill, but to his chagrin I overhaul him on the run down to the 'Old Man's' at Coulsdon, which should not be surely, yet he is 'all out'. A teeth-chattering ride along Smitham Bottom, once more I hear the 'ding-dong' of the electric Juggernauts at Purley Corner, and so home. Analysing my day's experiences, I index the following for reference: That an exhaust lift actuated by a Bowden wire from the handle-bar, so that the valve can really be lifted to its full extent independently of the spark lever, is a sine quâ non. That the place for an oil pump is forward, where you can both see and reach it comfortably. That wire ends at terminals should be neatly twisted, soldered with resin □ðux (not spirits), and held with two nuts. That Hooydonk's paraīin injector valve, or some other provision for the same purpose, is indispensable. That I have no use for back-pedalling brakes, which do not permit the machine to be wheeled backwards. And that, above all, motor cycling is the thing. All of which, of course, I knew before."

Archie Barr.

*Archie mentions a cop holding his '"Waterbury"; it seems that bargain-basement Waterbury pocket watches were so common that "Waterbury" evolved into a generic term for a watch—Ed.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CHRISTMAS
THE NEW GOLD
PRESENTS.
WATERBURY
WATCH
SERIES N FOR LADIES.
SERIES N FOR LADIES.
The new Quick-winding Waterbury Watches are now Perfection. Always the most Famous Time-keepers in the World, they are now as Exquisitely Beautiful as they are Mathematically Accurate. "Admirable! Perfect!" is the Verdict of all who have seen them in their new Gold and Silver Cases.
ARABIC DIAL.
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WRITE FOR THE HANDSOME ILLUSTRATED CATALOGUE.
Rapid-wind, Keyless, Stem-set, Dust-proof, Jewelled throughout, Compensation Balance, Duplex Escapement, and all the Latest Improvements.
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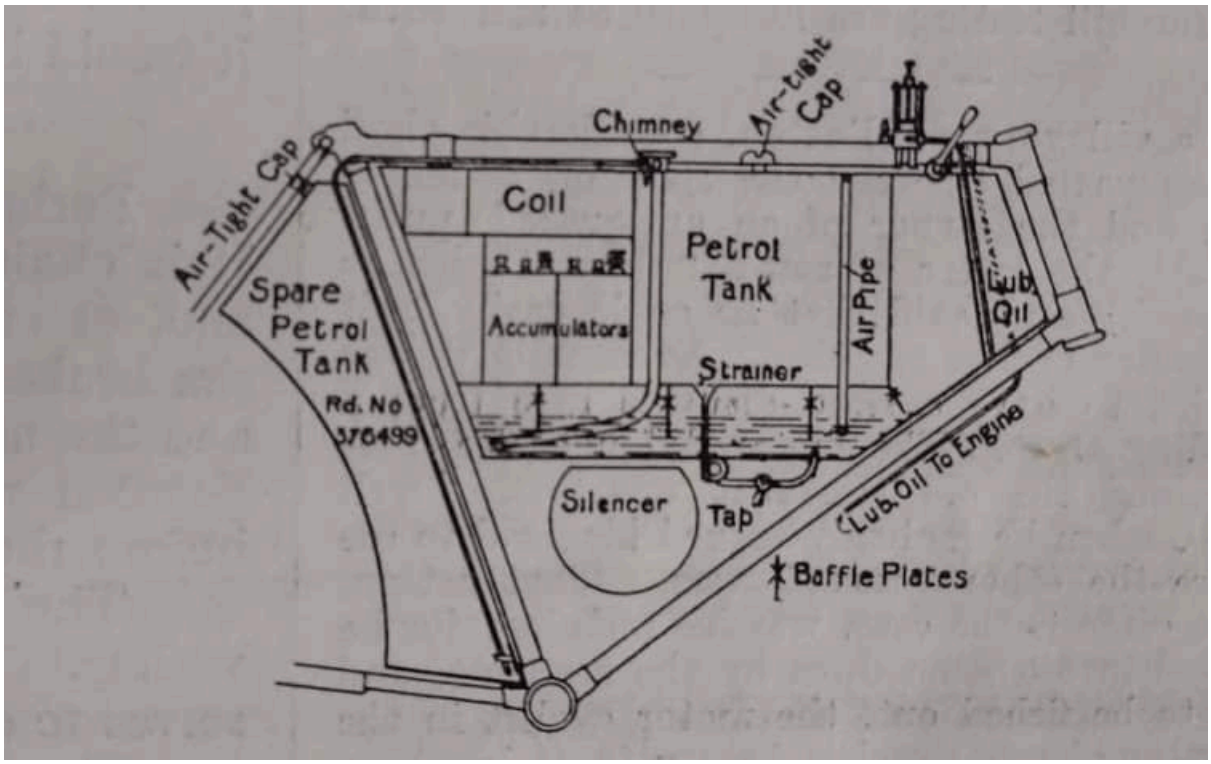
SOLD BY ALL WATCHMAKERS AND JEWELLERS.
And at the WATERBURY WATCH DEPOTS: 2, HOLBORN VIADUCT, E.C.; 435, STRAND, W.C.; 131, REGENT STREET, W. Write for the Handsome new Catalogue to the
Head Office: Waterbury Watch (Sales) Co., Ltd., 7, Snow Hill, London, E.C.

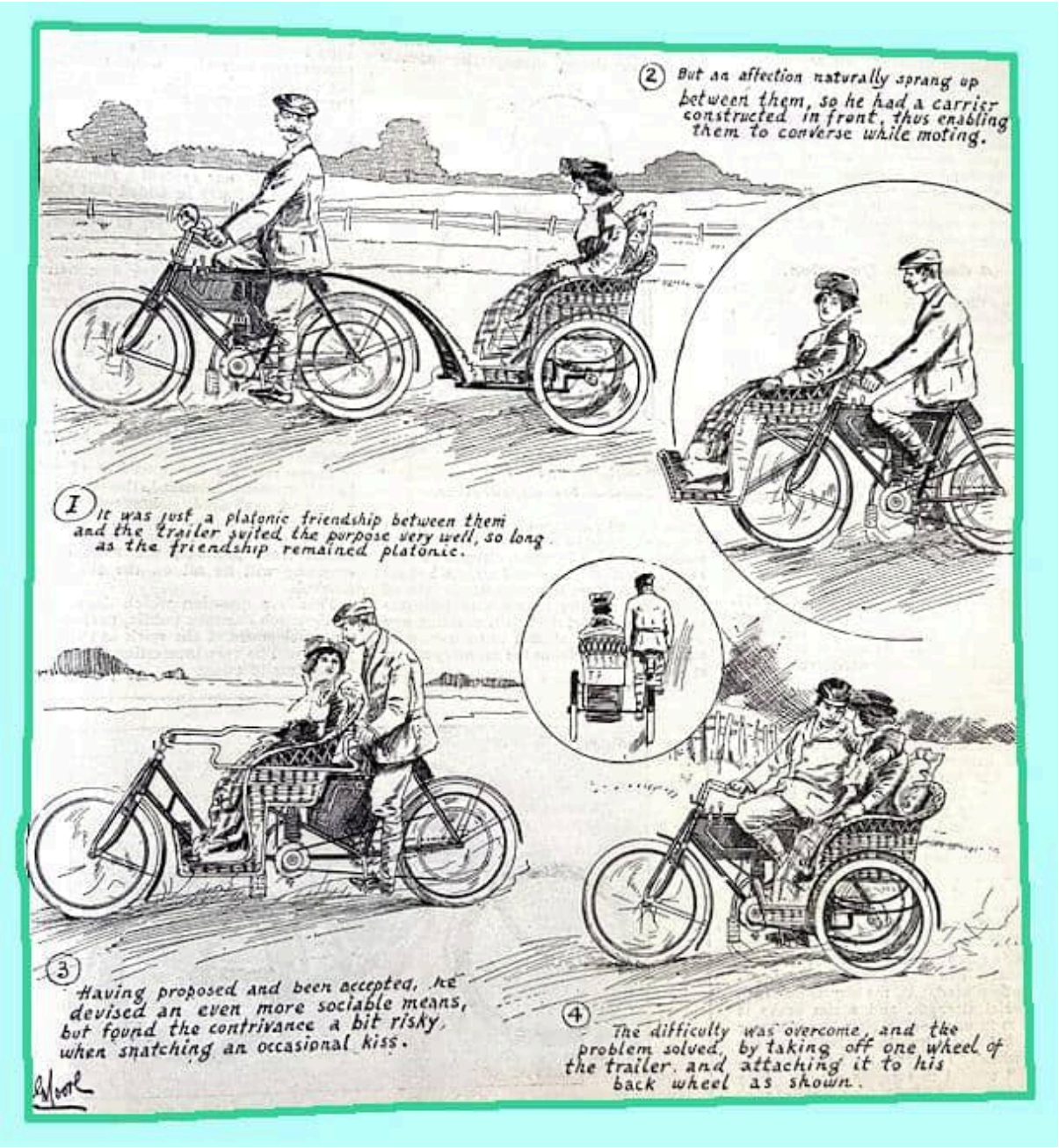
THEAUTOMOBILECLUBofSt Petersburg staged a road race; three of the motor cycle classes were won by FNs leading one pundit to remark: "As the course over which the three races in question were run was on a Russianhigh road, we think that to those who know how bad the Russianroads are, this will speal volumes for the reliability and strength of this make of motor bicycle."

THEPHOENIXSURFACECARBURETTORincorporatedbaīle plates and a large surface area; the manufacturers claimed: "No amount of road bumping will upset or evenalter the mixture…a

constant level is maintained owing to the petrol tank being absolutely airtight, so that as soon as the petrol in the carburetter falls belopw the air pipe, a further supply from the tank is admitted,,,The silencer is placed close to the carburetter, and this keeps the petrol at a suïiciently warm temperature…[the carburettor] cannot choke, stick or □ðood."

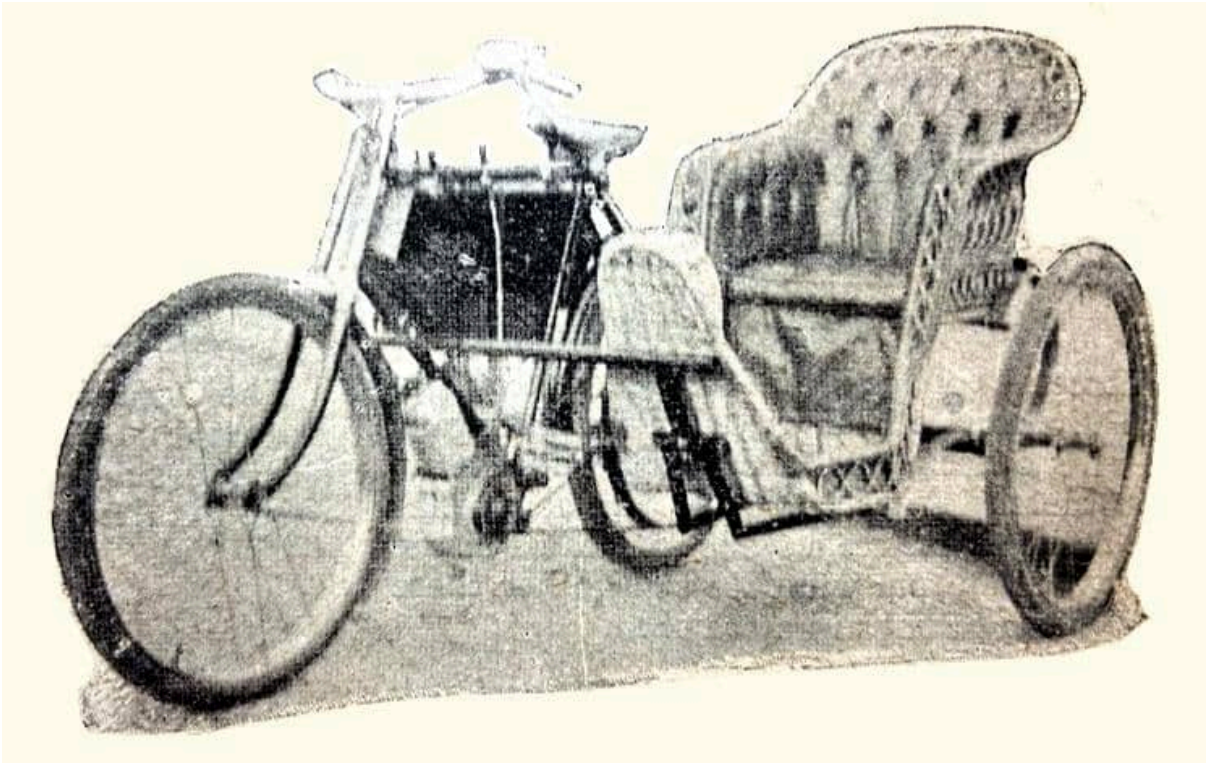


A rare insight into 1903 motor cycle technology; the Phoenix was state of the art.


2 But an affection naturally sprang up between them, so he had a carrier constructed in front, thus enabling them to converse while moting.
1 It was just a platonic friendship between them and the trailer suited the purpose very well, so long as the friendship remained platonic.
3 Having proposed and been accepted, he devised an even more sociable means, but found the contrivance a bit risky, when snatching an occasional kiss.
4 The difficulty was overcome, and the problem solved, by taking off one wheel of the trailer and attaching it to his back wheel as shown.

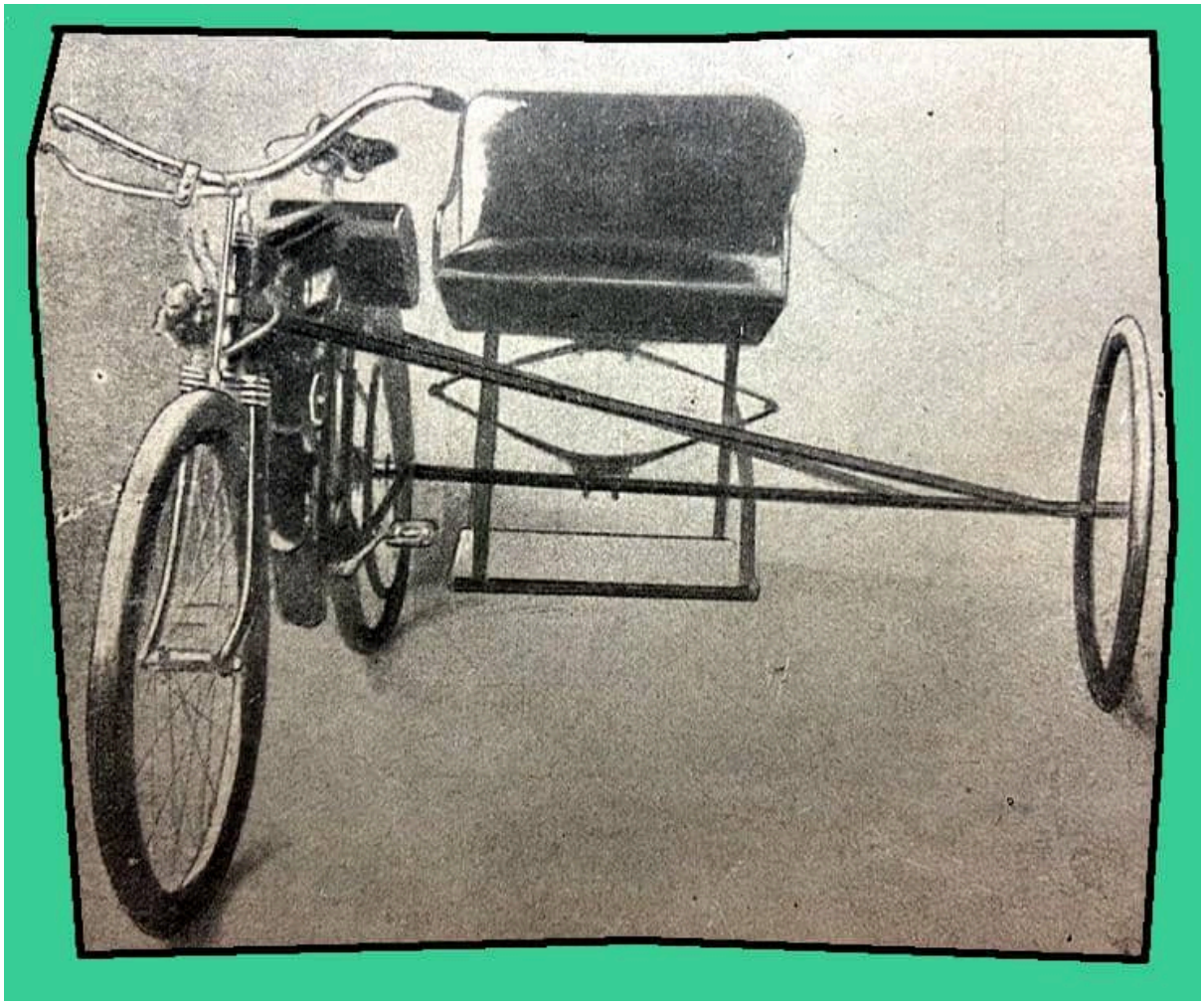
This rather sweet illustration, which appeared in Motor Cycling, seem to have been the inspiration for the sidecar out□ðt. The caption read: "Love laughs at motor diīiculties." Motor Cycling was certainly happy to take credit.

"GRAHAM BROS, THE PARADE, En□ðeld Town, are now supplying the 'Liberty' Sociable Attachment for motor-bicycles. This is a well-□ðnished little carriage, readily attached by stays and clamps to a motor-bicycle in such a manner that the two riders sit side by side, instead of one behind the other, as with a fore-carriage or trailer. The makers claim that it is particularly safe to ride, and impossible to turn over, and soon attached or detached from the bicycle. It can be supplied suitable for BSA, Components, Ariel, Minerva, Eadie, Perry and Chater-Lea motor-bicycles. It has a 'Liberty' 2in motor-bicycle tyre. Price £13 13s."



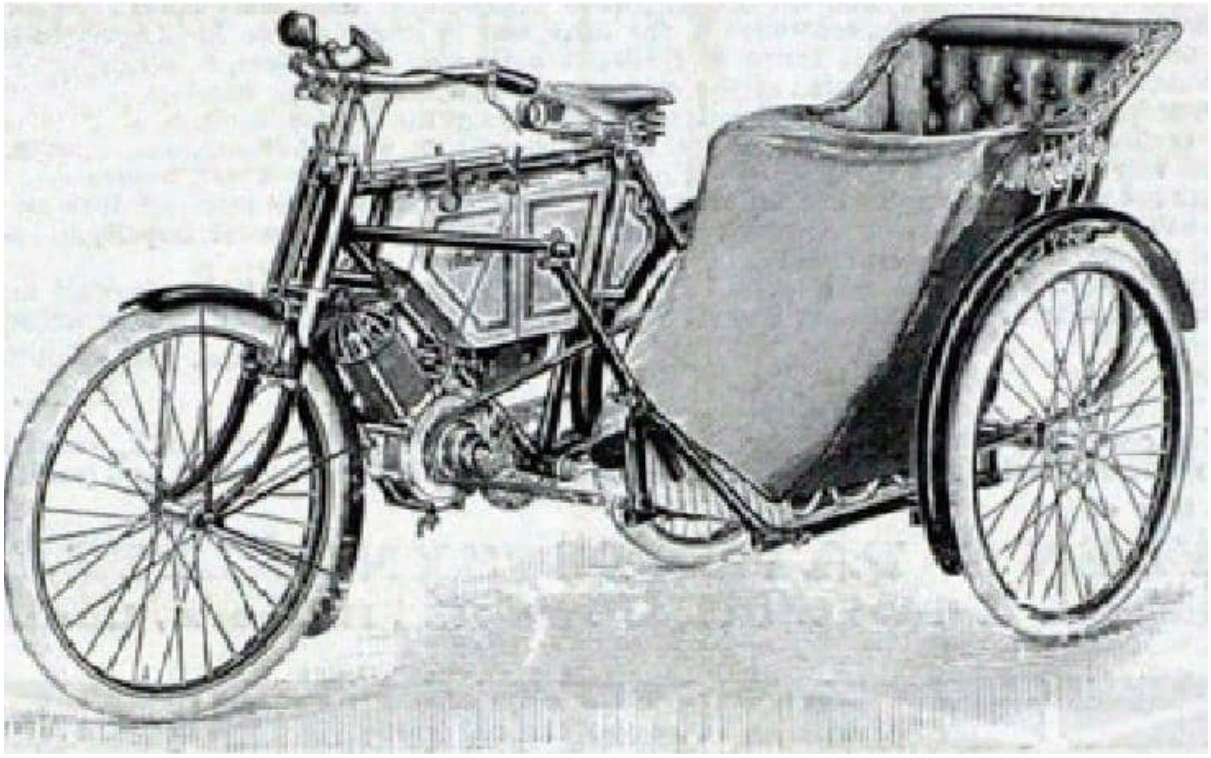
“Motor Sociable, made by Graham Bros, and curiously on the lines of a humorous drawing which recently appeared in this journal.”

ALONGSIDEITSPICTUREOFthe □ðrst‘sociable’ Motor Cycling reported: “An Iowa motor enthusiast has devised an attachment for motor bicycles for carrying an extra passenger or two, if the motor is suīiciently powerful. Thedevice is rigidly attached, being secured to the bicycle at three points. Thedesigner claims that it is perfectly satisfactory in practice, and is almost devoid of side draught. It appears from the illustration to haverather too ‘wide a tread’ to be suitable for crowded roads.”



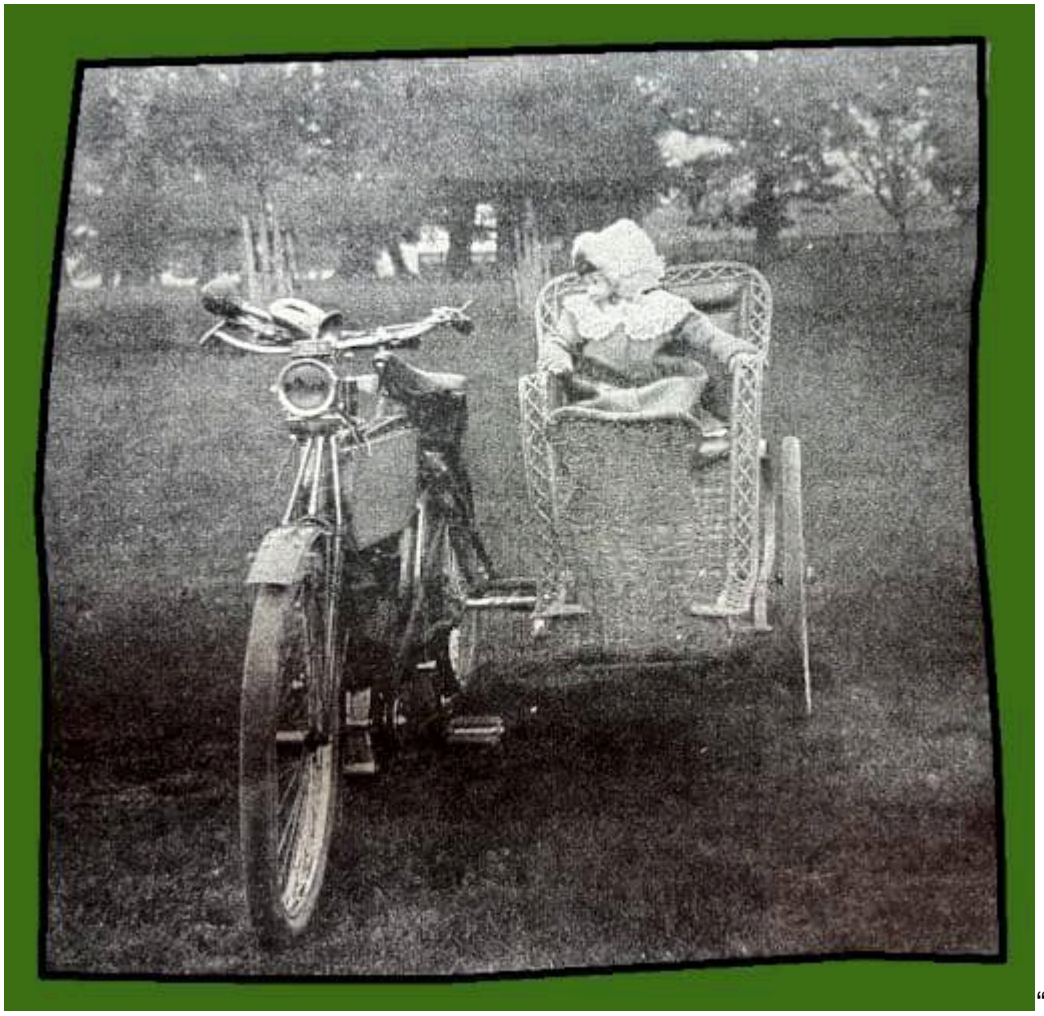
“An American attachment, somewhat similar to the above, is shown here.”

HISTORYRECORDSTHATFREDGrahamdesigned and patented a sidecar which was made for him by Mills & Fulford. The Motor Cycle later reported: “…wemade our □ðrsttrialtrip on a sidecar built up by the inventor of this popular attachment, Mr Graham, of En□ðeld.Weweresopleased with this method of carrying a passengerthat very soon after we ordered a sidecar from the Ariel Co, who started to manufacture under licence from Mr Graham.” Other □ðrmsincludingLiberty, Montgomery and Trafalgar,also claimed to have built the □ðrstsidecars;theLiberty Sociable was the □ðrsttobewidely advertised. In any case one Richard Tingeyhad built a chair-on-a-wheel for his bicycle some years earlier . TheMotor Cycle reported: “Messrs Mills and Fulford, who were the pioneers of the motor cycle trailer attachment, and whose sidecarriages and forecars have been so popular during the last year or two, have lately turned their attention to the □ðexibilityof the sidecar attachment. Thenovel point consists of connecting the sidecar wheel by means of steering rods to the front wheel of the bicycle. Theinventors have so set out the steering levers that when the front wheel of the bicycle makes a certain curve, the angle of the sidecar wheel describes the exact radius required to follow it without putting any side drags upon the wheel. This is one of the most practical improvements in sidecar design which has yet been introduced.”



Mills and Fulford's Duadcar was a dual-purpose sidecar/trailer.

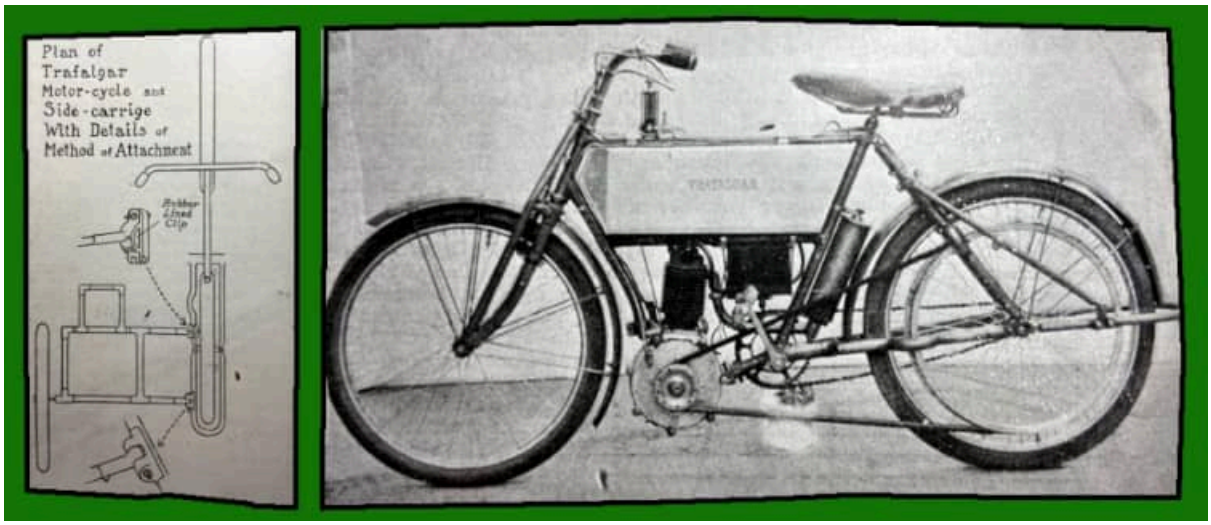
"FOLLOWING UPON THE FIRST, the 'Liberty', invented by Messrs Graham Bros., of En□ðeld, comes another side-carriage called the 'Trafalgar', designed by Messrs. Lyons and Co, of East Street, Baker Street, London, W. In order to attach this, a tube is □ðttedtothemotorcycle on the back axle, fastened by the usual nuts, really forming a continuance of the chain stays round the back wheel. Another tube from this to the seat pillar bolt makes the preliminary frame-work rigid. It is proposed that these portions shall remain on the bicycle, as they do not interfere in any way with ordinary riding. When the side-carriage is to be used it can be □ðttedintwo minutes. It is placed in position, and when two butter□ðyscrewsaretwisted tight the vehicle is ready for its passenger. Theconnection is suīiciently □ðexibletoallowthe bicycle to remain a bicycle so far as steering is concerned, the rider being able to lean to the right or left, according to the turn he desires to take. A short spin through traīic convinced us of the practicability of the invention. It answers equally well with the side-carriage empty."



"The Trafalgar Side-Carriage Attachment, made by JLyons and Co."

"THE'TRAFALGAR'MOTOR-BICYCLEismanufactured by Messrs Lyons and Co, East Street, Baker Street, London, W, the patentees of the 'Trafalgar' side-carriage. The □ðttingsforthe purpose of □ðxingtheside-carriageare permanently attached to the machine. Theyconsist of a continuation of the chain stays round the back wheel, and a tube from this to the lug of seat pillar. The motor is of 2¾hp, the carburetter is a Longuemare,with throttle operated by ratchet lever on the top tube. Exhaustlift on left handlebar by Bowden lever and wire. This also cuts oī current at a certain point. There are front and back rim brakes actuated by levers on the right handle-bar; these can be operated separately or together as desired by use of one hand only. Other details are a brush contact, trembler coil and spring. seat pillar. The price is 38 guineas, or with 3¼hp engine £2 10s extra. The plan shows the metal under-frame of the side-carriage. The connections are two, each fastened by an ordinary nut and bolt. There is no front bar. The side-carriage can be □ðxedordetachedin two minutes. A special point is that the axle of the side-carriage wheel in 7in behind the axle of the bicycle wheel. This was found to be the best practice by experiment to give easiest steering. The □ðexibilityoftheconnections is suīicient to allow for the curve of the road and any ordinary obstruction, so that if the side-car should pass over a brick, the bicycle rider does not feel the bump, and vice versa. The combination steers exactly like a bicycle; the rider leaning over to right or left when rounding corners. It can be ridden without a passenger,the writer having driven through miles of London traīic with the carriage empty, on the □ðrstoccasionthathe used it and also since. With regard to side-slip, this risk is eliminated provided a passengeris carried, but without one there is a possibility in

grease, about equal to that of an ordinary motor-bicycle. Over an extended trial it was found to be a perfectly practical conveyance. The price of the side-carriage is £8 6s upwards, or motor-bicycle and side-carriage complete £48 6s. This latter sum secures the £10 10s pattern side-car."



Having patented one of the □ðrstsidecarsTrafalgarmade a bike to haul it about. This seems to be the □ðrstQDsidecar and it leaned round corners.

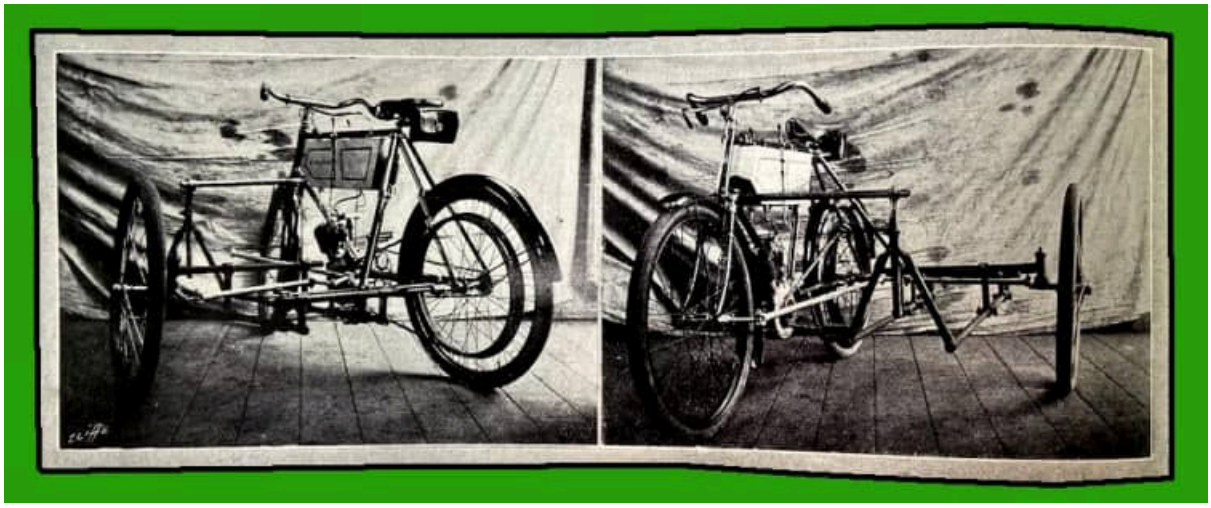
"A SIDE CARRIAGE ATTACHMENT for a motor-bicycle, embodying some special features, has just been introduced by Messrs G Featherstone and Sons, 234, Bethnal Green Road, London, E. The framework is specially designed to stand excessive strains, being of a double tubular type, and the whole well stayed, making same extremely rigid. The body is sprung on double C-springs and coil springs at the front, absorbing all vibration and making same extremely comfortable. Means are provided for adjustment of the driving band or chain without interfering with frame of attachment. The axle carrying the wheel of side carriage is made of the very best steel 1in by ¾in."

"The 'Featherstone' side attachment."

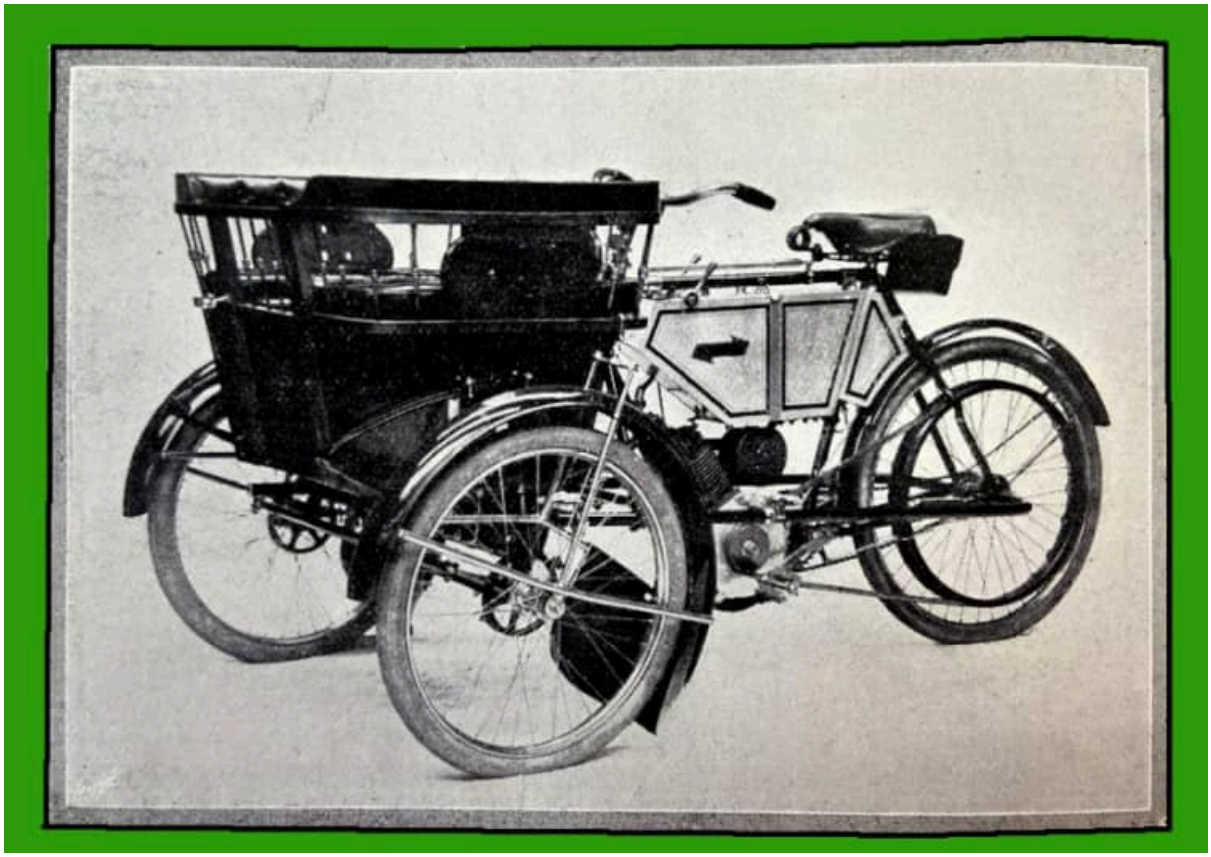
MESSRSMILLS&FULFORD,whowere the pioneers of the motor cycle trailer attachment, and whose sidecarriages and forecars have been so popular during the last year or two, have lately turned their attention to the □ðexibilityofthesidecar attachment, and have patented the idea which we show here. It will be noticed, on reference to the illustrations, that the sidecar occupies a much more forward position than usual in relation to the bicycle. Theattachment of the sidecar frame to that of the bicycle is practically the same as those of the rigid pattern which Messrs Mills & Fulford have previously supplied. Thenovel point in connection with the design consists of connecting the sidecar wheel by means of steering rods to the front wheel of the bicycle, which can be clearly seen in our illustration. Themakers inform us that they have made several experiments between the rigid sidecar and this pattern, and in every case they found that the rigid attachment required more power to propel it than the new one. The □ðrstquestion that will be asked is, Does not the position of the sidecar wheel necessitate a diīerent turning angle from that to the steering wheel of the bicycle? This has been provided for by the inventors, who have so set out the steering levers that when the front wheel of the bicycle makes a certain curve, the angle of the sidecar wheel describes the exact radius required to follow it without putting any side drag upon the wheel. After a careful examination of this new invention, we think that all those of our readers who have had any experience with the sidecar will agree with us when they see it that this is one of the most practical improvements in sidecar design which has yet been introduced. We say this all the more con□ðdentlyfromthefact that up to the present the only thing which militates against the growing popularity of this form of motor bicycle attachment is that a certain amount of diīiculty is experiencedin turning corners, particularly

when the side-car is on the inside, this diīiculty being, of course, caused by the fact that in the older designs the wheel of the side-carriage has been so □ðxedthatthedirection in which it runs is always parallel to that of the rear wheel of the propelling bicycle."

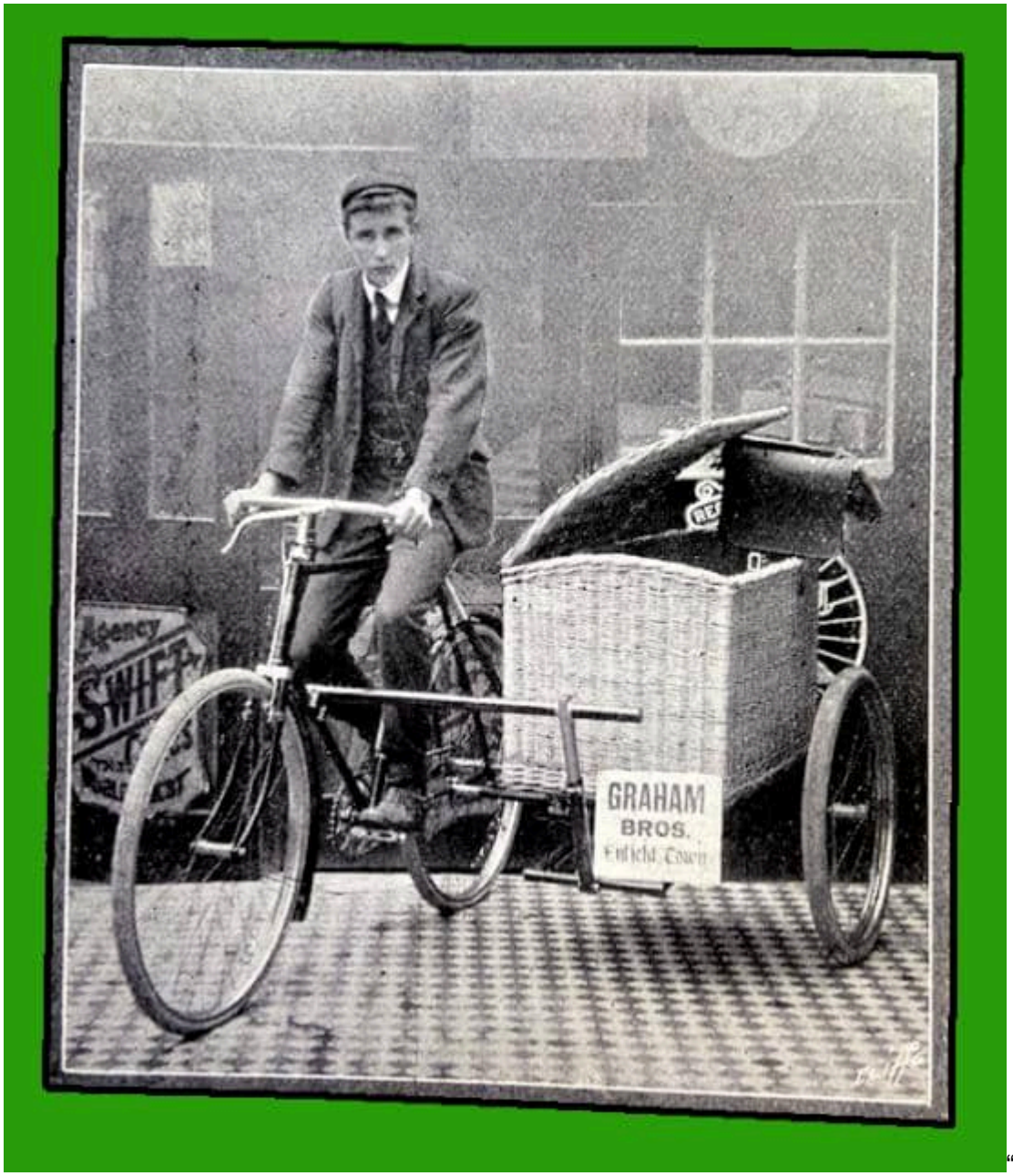
"The Mills & Fulford sidecarriage attachment."



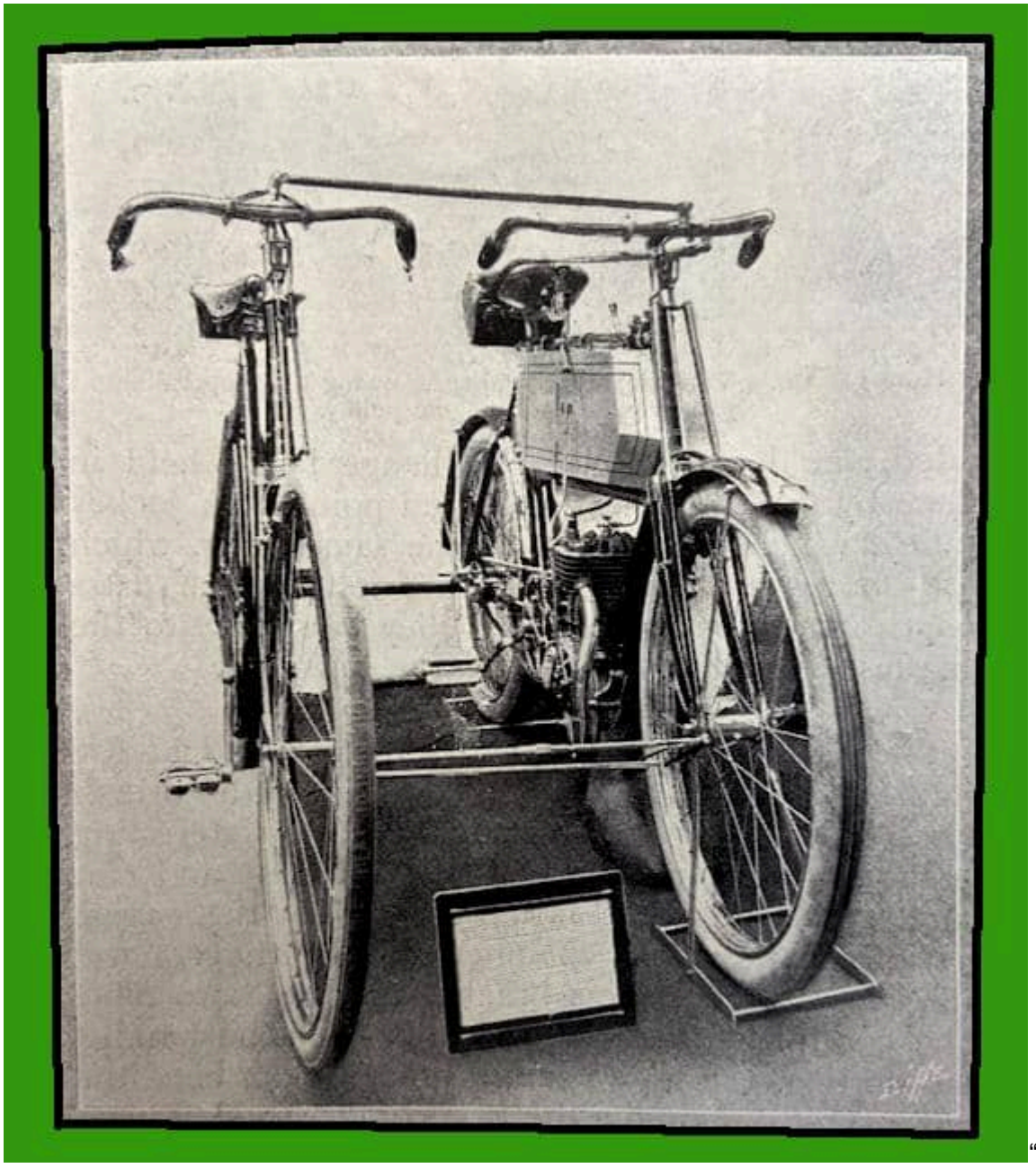
"A new system of attaching and steering sidecarriages by Mills & Fulford, Coventry."



“The Millford Governess Forecarriage.”



“The Tradesman’s Sidecar. Graham Bros, En□ðeldTown.”



"The Ariel coupling, for attaching an ordinary cycle to a motor cycle. The new coupling for connecting an ordinary lady's or gentleman's bicycle to a motor bicycle strikes us as a good thing. The two front wheel axles of the motor bicycle and the bicycle are connected, as are the handle-bars, by universally jointed coupling rods. Another tubular bar suitably jointed is clamped to the chain stay on one side of each machine just forward of the rear axle. The sensation of riding is described as similar to that of a tandem with connected steering. Mr Herington informed us that he always used his, even without a passenger, to prevent side-slip."

“A French lady’s motor bicycle. To enable a drop frame to be ridden the bicycle is coupled up to a motor cycle à la Ariel.
Reproduced from La Locomotion Automobile.”

JOHN MARTON HAD BEEN producing Sunbeam bicycles since 1887; in 1903 his deputy works manager patented the ‘Little Oil Bath’: a fully enclosed chaincase for motor cycles and experiments were made with a Sunbeam bicycle □ðtted with a lightweight Motosacoche engine. That all came to an end when an employee was killed on a prototype motor cycle.

A GP WROTE TO The Lancet: “The advantages of motorcycling as a means of locomotion for professional men are not suīiciently appreciated. In March last I purchased a motor bicycle and had no diīiculty in familiarizing myself with its working…In the second week of April I was able to dispense with the services of one horse and in the □ðrst week of June with those of a second…The machine has given me a great deal of pressure, and I have been able to get over my

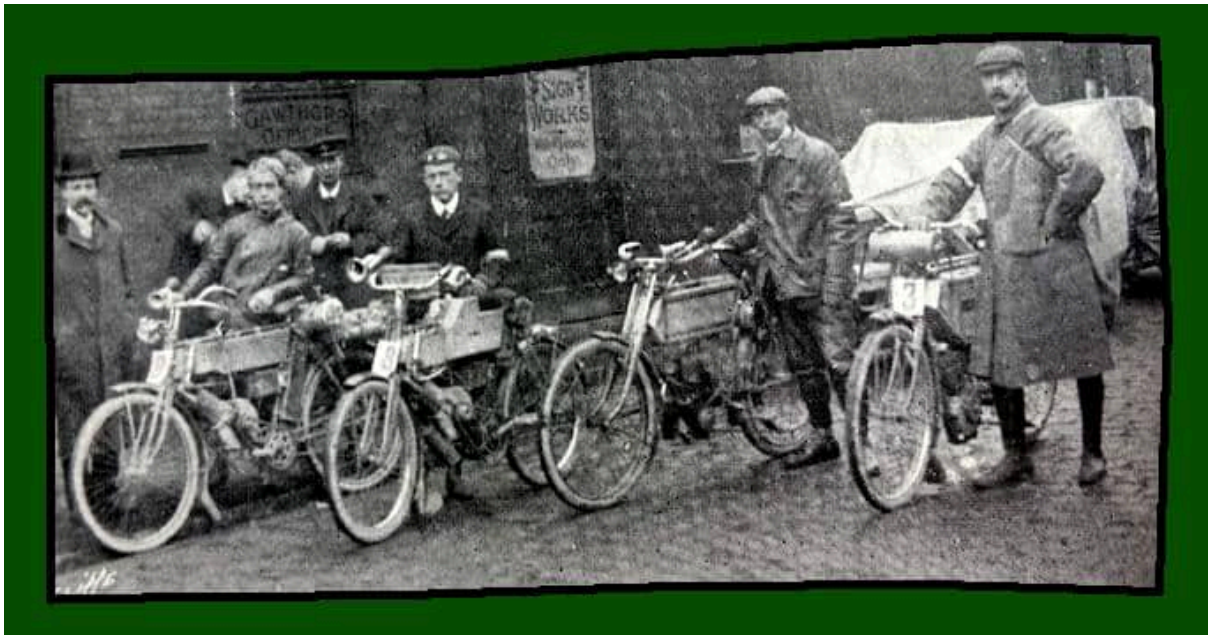
work in much shorter time. My health is also much better as I am compelled to take more exercise…"

SPEEDING RIDERS were faced by a growing number of speed traps and unsympathetic courts. This prejudice was equally prevalent on the Continent (though the French seemed immune); some Swiss cantons banned all motorised vehicles.

Motor cycles were racing on the banked velodrome track at Carmarthen Park. A 2¾hp Riley lines up against a bike using a Perry Victor frame and forks and a 3hp Humber.

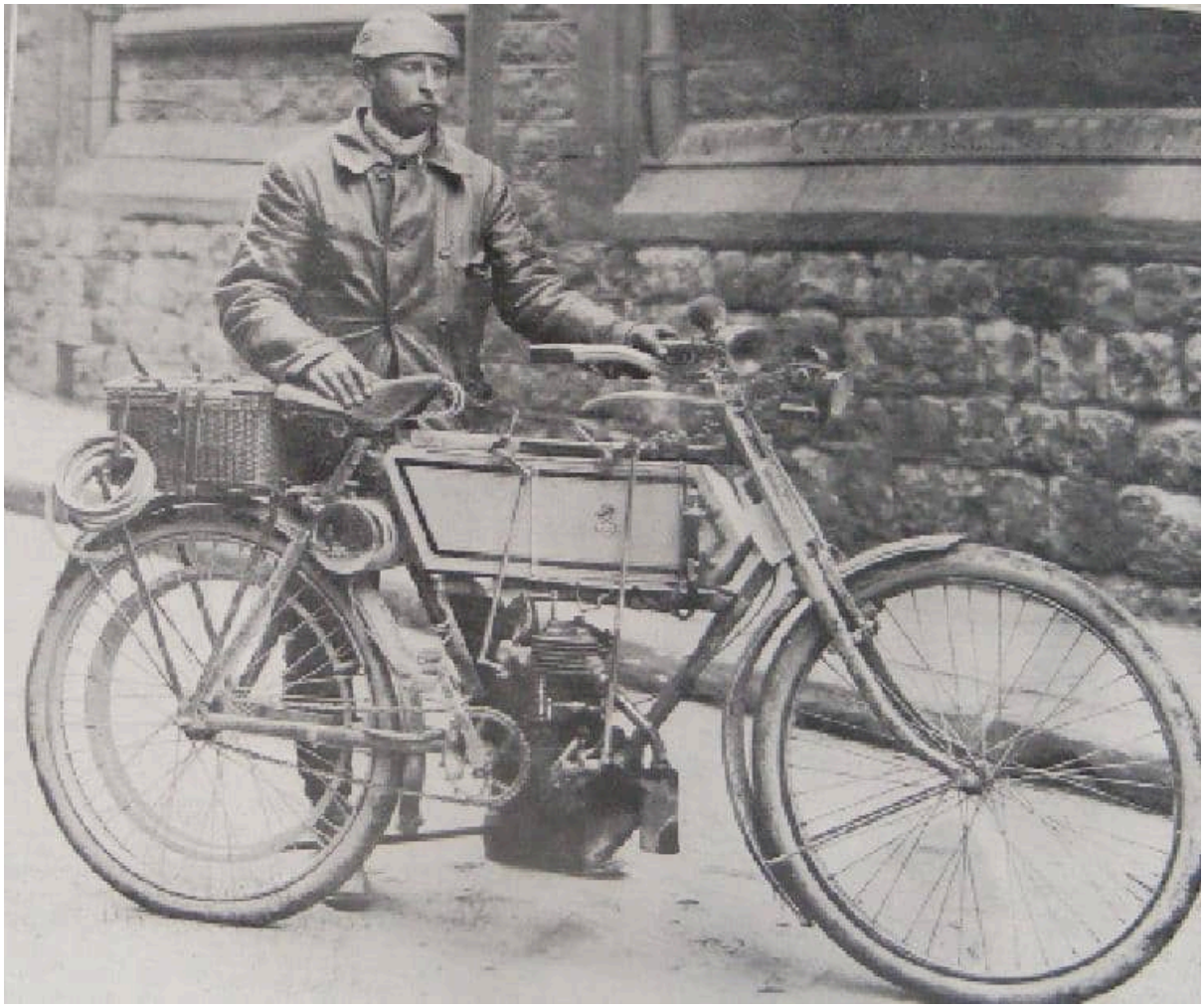
This 1903 Lagonda forecar is enjoying a gentle jaunt to Brighton but in its youth one of its stablemates was the □ðrstmotorisedvehicle to reach to Cape Wrath.

THESCOTTISHAUTOClubstaged the Glasgow to London Non-Stop Trial and asked for motor cycle entries. Nine worthies answered the call; seven of them turned up: LB Tucker and Jas Paterson (2¼hp Triumphs); Bert Yates and JF Crundall (2¾hp Humbers); Thom Silver (2½hp Quadrant); E Herington (2hp Ariel); and FE Coles (2¾hp Brown). [To 21st century enthusiasts accustomed to horsepower in three-□ðguredosesit'sinteresting to see four models rated from 2-2¾hp!] According to a contemporary report: "Worse weather or nastier roads could hardly have obtained for motor cyclists; grease [mud] was everywhere and the atmosphere was charged with moisture. In addition, rain fell with frequency throughout the day, the wheels threw the road grit up terrible, and there were belt troubles in consequence. The 'Quadrant' and the 'Ariel' men did not look a bit as if they like it as we passed them on the outskirts of Glasgow; and getting further on when descending Beattock summit, we overtook the No 1 'Triumph' worried by tyre troubles in that desolate region. Two miles south of Lockerbie we net the rider of No 6, the 'Ariel', walking back on his tracks, but though we shouted and asked him what ailed him he only waved his hand and passed. When four o'clock had struck in Leeds, only Bert Yates on the Humber was in the garage, and had been delayed six miles out by petrol famine, which was only



“Motor cyclists leaving Leeds in the Glasgow-London Non-stop Trial. T Silver, Brown, A Yates and J Crundall, reading from right to left.”

relieved by some kindly sould in a car heaving him a canful. The next to arrive was the other Humber, ridden by Crundall. But for the petrol stop mentioned above, Bert Yates would have made a non-stop run, but Crundall is credited with a non-stop run—a very □ðne performance…a wire was recived from Paterson to the eīect that he had stuck at Kirkby Lonsadale. There also came telegraphic news from Herington, who announced from Preston that he had abandoned the trial on account of some .725 petrol and that he was on the rail for home…just after Alconbury we passed the Brown and the two Humbers close together while the Quadrant was not far ahead…at Biggleswade, Crundall, who had up to that point made a non-stop run, was obliged to dismount to dig earth out of his carburetter. We only marvelled that all were not aīected with similar troubles. Just before Eaton Socon, rising a hill, we passed Bert Yates doing some powerful pedalling and licking his lips in a particularly thirsty way. The cyclists had some diīiculty i getting to the club in Picadilly to report in, as a huge crowd had gathered to watch the arrivals; but at 5:13 FE Coles on the 2¾hp Brown ran up, followed closely by the Quadrant ridden so pluckily right through by Silver. At 5.43 Bert Yates on his Humber was reported, and at 6.12 Crundall on the sister machine turned up, his run spoilt by his bad luck at Biggleswade.



FE Coles with his 1903 2¾hp Brown at the end of the ACC London-Glasgow non-stop trial.

Hard on Coles' heels at Picadilly was Tom Silver: "The Quadrant motor bicycle, the only motor cycle in the Glasgow-London Trial which made an absolute non-stop run. We regard this as a most remarkable feat, as it means that, beyond re□öllingthetank,the machine was not touched in any way for 402 miles. It is the most remarkable demonstration of the reliability of the motor cycle that has ever been made. Mr Thos Silver, the rider, has had an eventful life. He was one of the railway pioneers from Cape Town to Sierra Leone, and during Lord Wolseley's campaign in the Soudan saw service under him in the 10th Hussars. Later he had two years at the front during the Boer War, and since his return to England he has become a motor cycle enthusiast in every sense of the word. His past experiences have been of great value to him in training, and he is to be congratulated on his latest feat."

“A Yates on the 2¾hp Humber entered for the Glasgow to London non-stop run. This is a standard machine except that It has 26in wheels, no free-wheel clutch in the motor drive, and □ðatinstead of upturned handle bar.”

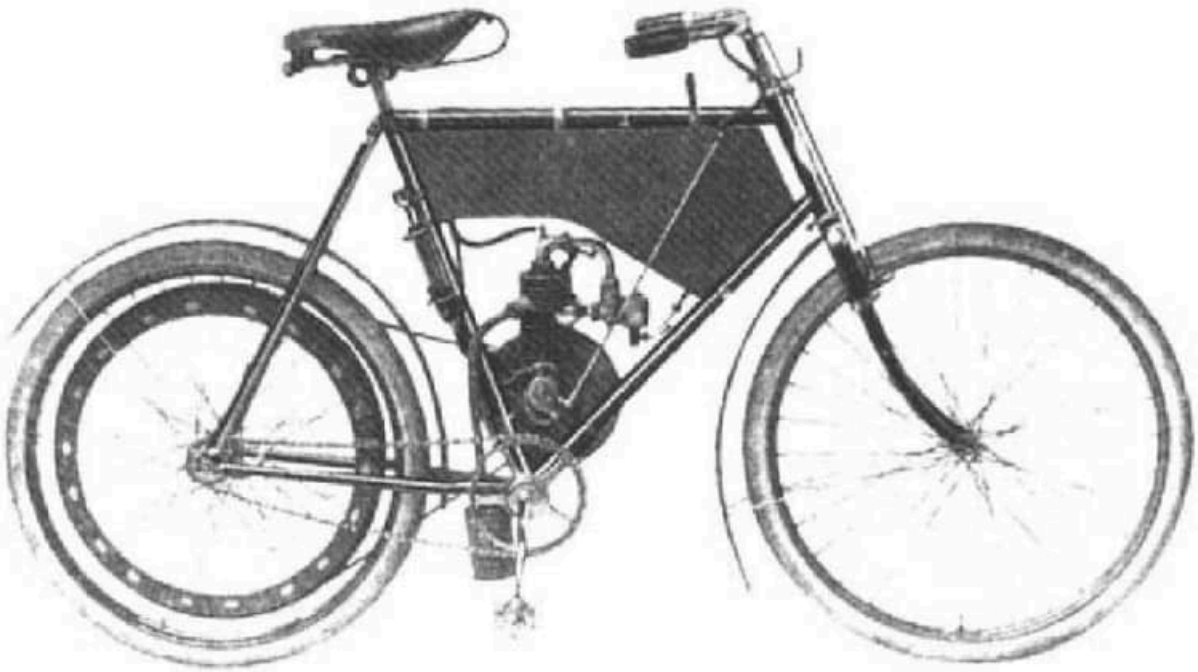
…leaving record-breaking ‘crack’ JF Crundall as the □ðnal□ðnisher, having been delayed by a blocked carb.

Norton expanded its range, oīering Clement or Peugeot engines ranging from 1½-4½hp.

“WHEN THE new Motor Cars Bill was being discussed in the House of Commons an amendment was passed to the eīect that no one under seventeen years of age should be permitted to drive a motor vehicle. To allay the anxiety of motor cyclists we wired the President of the Local Government Board as follows: ‘Does clause in Motor Cars Bill refer to motor cycles

as well as cars? Presume it does not – The Editor, The Motor Cycle.' The reply is as follows: 'Age limit for motor cycle, fourteen.'"

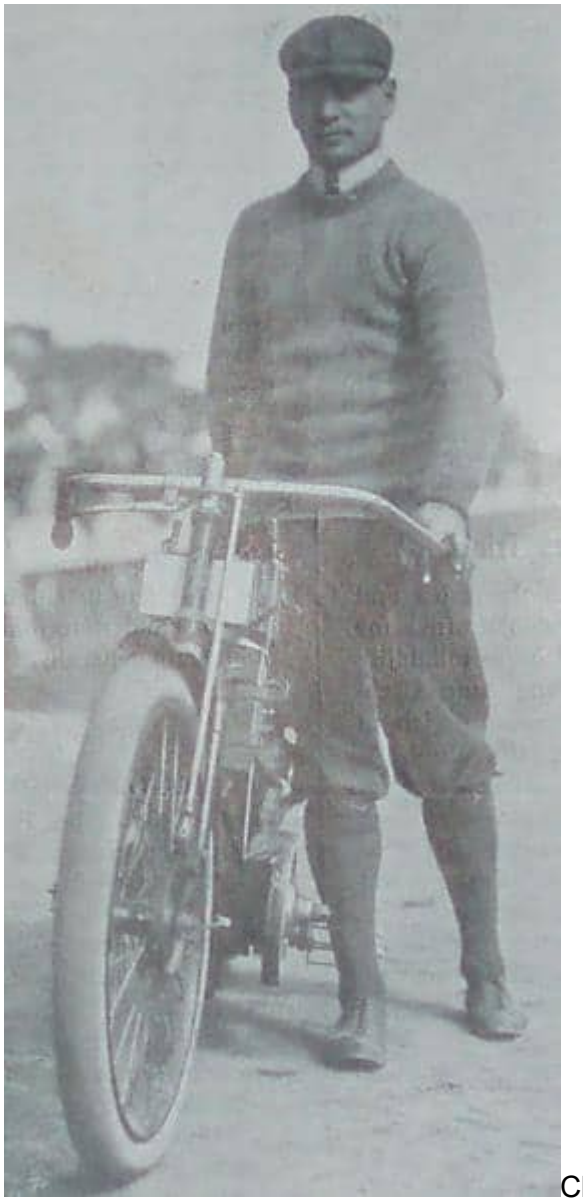
HUSQVARNA GOTS Sweden into the game by □ðtting Belgian FN engines into its bicycles. Like BSA, Husqvarna had its roots in guns; it had been supplying the Swedish army with longarms since 1689.



Husqvarna took to Swedish roads with a Belgian engine.

After two years of one-lungers FN launched the in-line four that would gain world-wide acclaim,

ALBERT CHAMPION set an American □ðve-mile record of 5min 35sec on a 10hp four-pot Clement at the Empire City track in Yonkers, NY.



Champion by name, and nature.

THECYCLISTS'TouringClub arranged a spring tour for motor cyclists. Theyleft Marble Arch at lunchtime for a run to Salisbury, via Basingstoke and Andover. The next day's destination was Exeter, via Dorchester, Blandford and Bridport or Shaftesbury, Yeovil and Honiton. The third day's run passed through Taunton and Bridgwater to Bristol. Day four, Worcester via Gloucster and, □ðnally, backto London via Evesham and Oxford.

NEWCOMERSTOmotor cycling were warned to take out a licence for 15 bob or risk a £20 □ðne.

"SCORCHINGMOTORcyclists, we are sorry to say, appear to be on the increase on some of the chief main roads out of London at the weekends. Riders of this class who adopt low bars and racing positions may perhaps create the sensation they desire, but they do the motor pastime no good. Were a collision to ensue between them and a pedestrian or a cyclist the consequences might prove very serious. Motor cyclists, favoured by a string of 'hangers on', are also becoming a nuisance along the Bath and one pr two other roads, though, as a rule, they do venture very far a□ðeld."

The Haleson was built in Bristol with a para□ðn-fuelled□ðashboiler–alastgaspfor steamers.

“THE NEWLOCOMOTIONhasfascinations and exhilarations all its own. Theability to attain and maintain speedof which they previouslycould but dream, to varyit at will, to dash uphill and dart down dale, to care not which way the wind blows nor how hotly the sun shines—to be almost literally as free as a bird and to skim the earth like the bird and with less eīort and to do it seated man fashion astride a saddle, with ability to start or stop by merely twisting the wrist, to go faster or slower by touching a lever, and to pedal when, where and how long he will—these are the joys which only a motor bicyclist can experience; no three wheeler or four wheeler or no motorless bicycle permits of them; they defy ready description; they must be experienced to be appreciated. It is rarethat once initial nervousness is overcome the experiencedoes not make a convert and an enthusiast. Thecontrol of a motor bicycle is so simple, so instantaneous land so absolute that most of those who feared have remained to wonder why they feared.”

Coventry was at the heart of the burgeoning motor cycle industry and the manufacturers generally used Stoneleigh Hill, □ðvemilesfromthe city, as their testing ground. No machines were sold until they had made the 450-yard 1:9 climb without pedalling in a 'normal gear'. Thesefactory testers, riding in a group for the Blue 'Un's camera, represented Excelsior, Humber, Rexand (the trike and tandem trike) Singer.

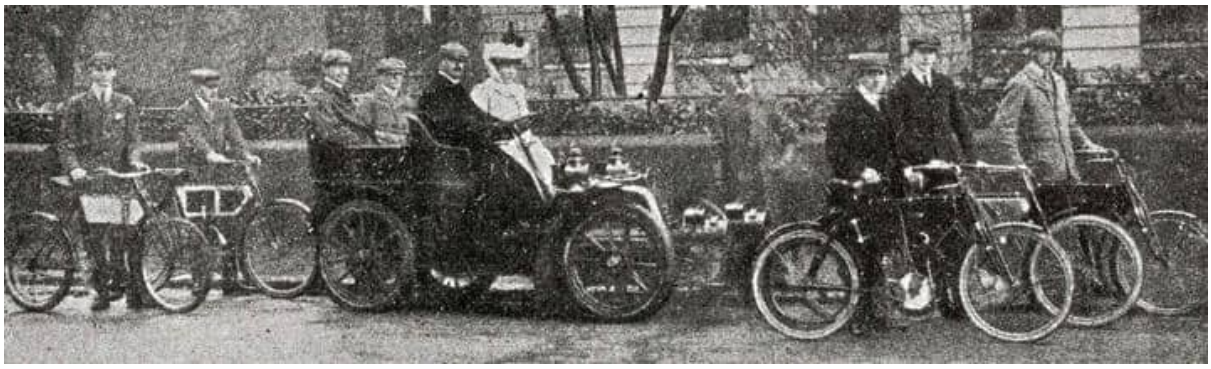
Thesame group of factory testers at the foot of Stoneleigh Hill.

JRBEDFORDhosteda meeting for motor cyclists living in and around Birmingham. About 20 turned up; they formed the Birmingham MCC, based at the Colonnade Hotel in MNew Street. In its □ðrstyeartheclub held a series of local social runs, a hillclimb and a 100-mile non-stop run.

THEFIRSTmotorcycle sold in Japanwas a Mitchell.

AN ENTHUSIASTnamedArchie Barr made a prediction: "Personally, I have an idea that we shall □ðndleatherclothingrecedes from favour for motor cyclists. It is not aesthetic, hygienic or smart. Some of the woollen materials being supplied by the specialists in that particular line are much more taking and equally serviceable."

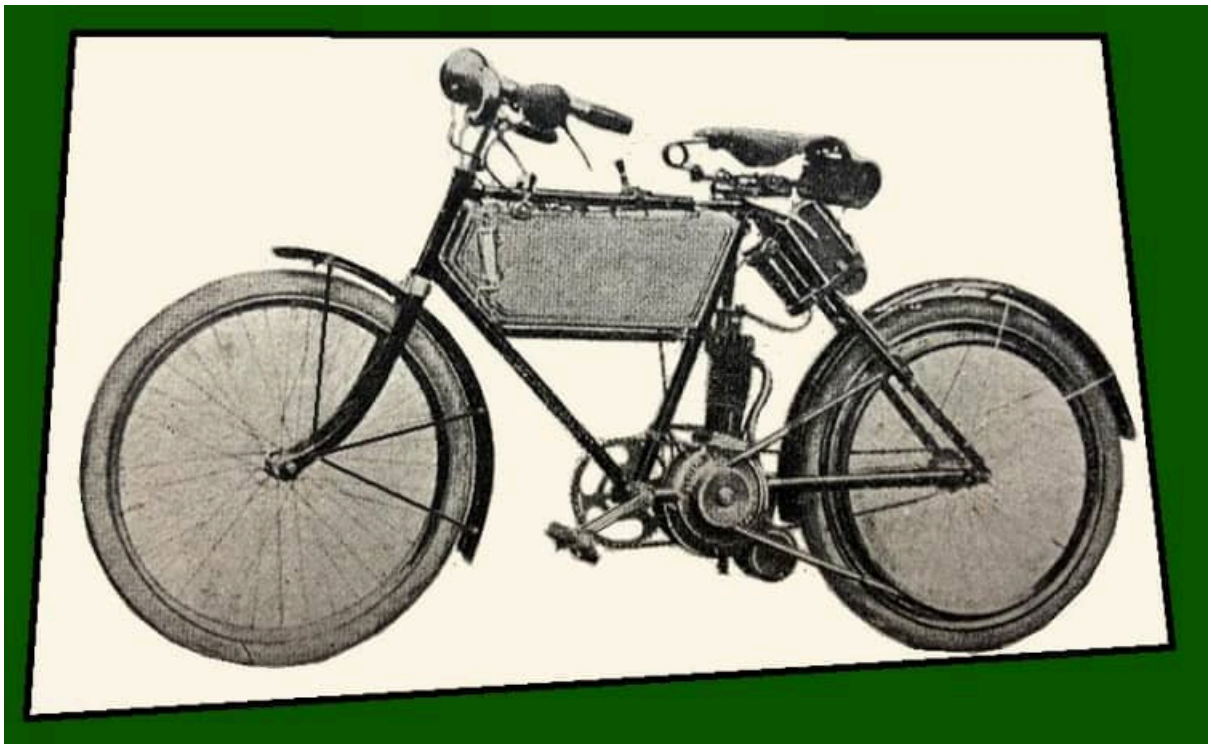
TheArmy was beginning to take an interest in motor cycles. This unit was set up at the Aldershot signalling school.



HF Trippel, an instructor at the Military College in Richmond, Surrey, added "instruction in motoring" to the curriculum: "Accordingly he is employing an automobile and several motor bicycles for the purpose."

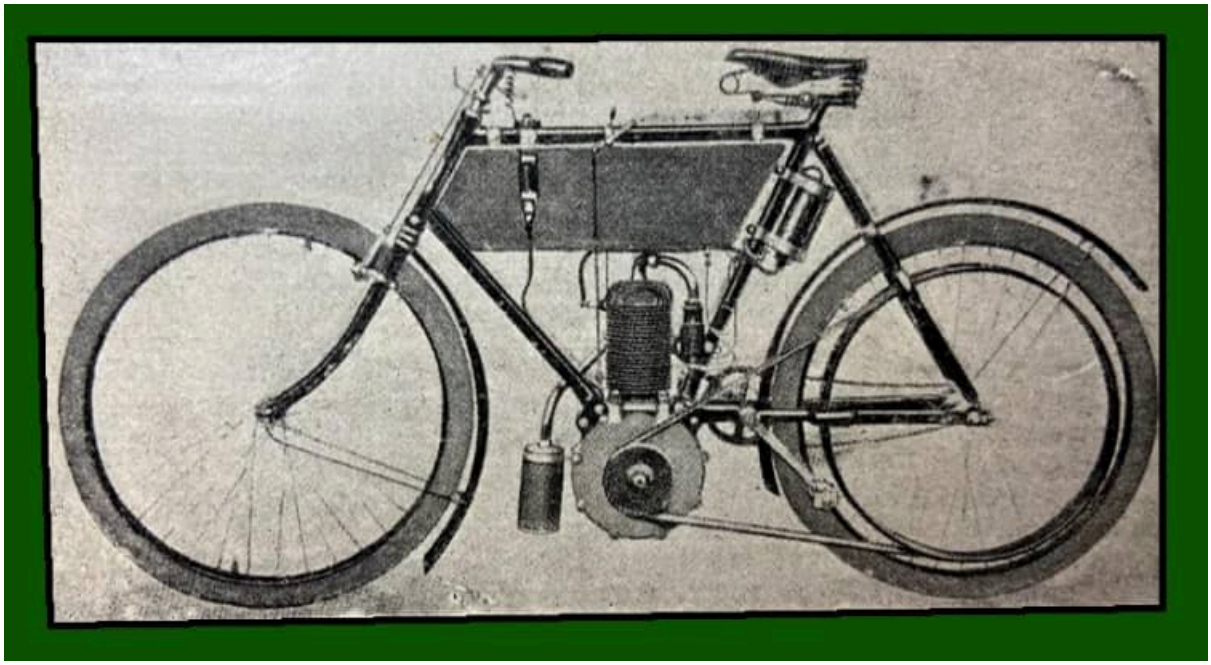
"FOLLOWINGSOSOONon the heels of the Stanley and Palace Shows, and the famous Paris Salon, the motor cyclist visiting the StanleyMotor Showat Earl's Court cannot reasonably be surprised if there is no marked change or development in motor-cycles shown there from those he has so recently inspected. Rapid as development is, new patterns are not brought out every month. Themachines to be seen, though limited in number, are representative of the best types. The'Minerva' motor is well in evidence on several stands. A couple of typical American machines are shown on Shippey Bros' Stand in the Ducal Hall. Careful inspection of these machines reveals much detail originality in design. in the Queen's Palacethe 'Altena' motor-bicycle will merit close investigation. The **Hamilton Motor Company**, Priory Works, Coventry, show four machines and also a trailer and fore-carriage. Themotor □ðttedisthe □ðrm'sspeciality.

It develops 2¼hp, and is shown □ðttedinboththe vertical and inclined positions. Theregulation is eīected by a Bowden lever which lifts the exhaust valve and breaks the sparking current. The engine itself has many good features. The crank pin is formed from two □ðnsonthe □ðy-wheel forgings; one sockets into the other, and there is thus an entire



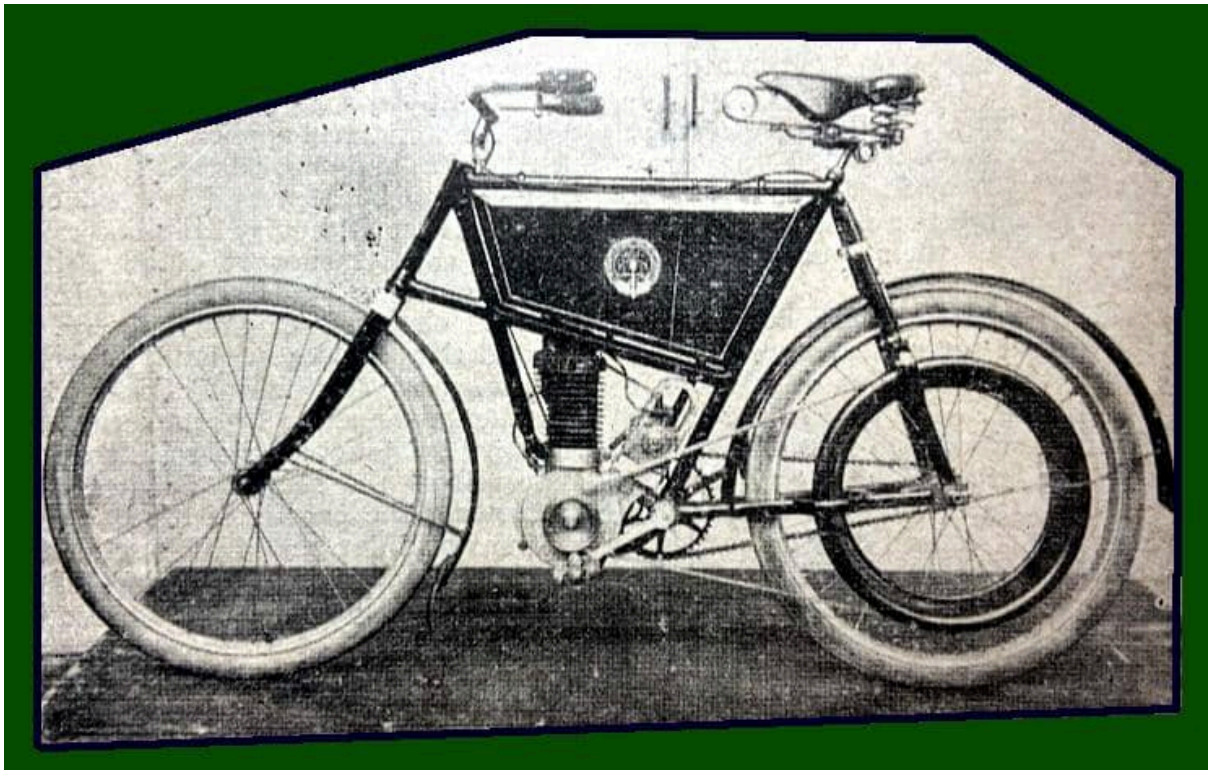
"The Hamilton Motor-Bicycle exhibited at the Stanley."

absence of nuts or screwed parts. Thevalves are extra large, and ample radiator surface is provided. Thesparking-plug points are protected by a drilled cap inside the combustion chamber, and thus the sparking is entirely unaīected by oil getting on the points. An interesting feature of this stand is a double-cylinder 4½hp motor-bicycle. Themotor is supported in a split loop piece that clamps □ðrmlyontothe main tube just in advance of the bottom bracket. This machine has duplicate front forks and extra large tank. Thesingle-cylinder machine is priced at £47 5s, and the two-cylinder at £66 3s. On Stand 11 will be seen the 'Borham' motor-bicycle, made by the **Borham EngineeringCompany**, Hammersmith Road, London, W. Theseare smart-looking mounts □ðttedwiththe new Minerva motor. Two powers are supplied, viz, 2 and 2½hp. Thefront forks are a specially strong piece of work, the tubes being carried right up to the ball head. Thebicycle parts of the machine are of the highest grade, and the □ðnishinaluminium and black enamel looks very handsome. **The East London Rubber Company**, Shoreditch, make an excellent display on Stand 35 of the Kerrymotor-bicycle, motorcycle frames, motor parts and □ðttingsgenerally.TheKerry is a capitally □ðnishedmachine,embodying the latest ideas. Theengine is 2¼hp, placed almost vertical in a specially designed loop frame, the crank case being secured to the diagonal and down tubes. A spray carburetter is □ðtted,andawarm air intake is provided close up to the cylinder. Thepetrol capacity is large, equal to about 120 miles running. A silencer of good dimensions is □ðtted,



"The Waddington Motor-Bicycle."

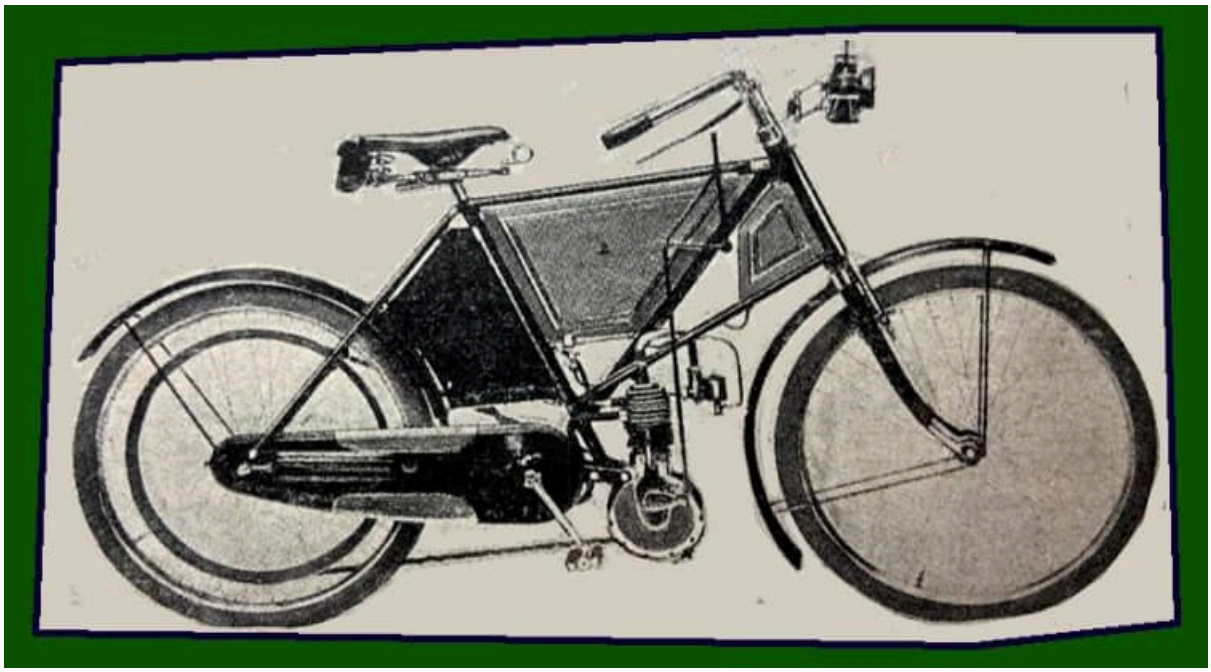
this being supported on the bridge tube from bracket. Lubrication is eīected by a pump feed, with transparent barrel. Brown Bros show a well- □ðnishedmachine,with vertical engine in a special frame with double horizontal tubes. Themotor is of 2½hp, □ðttedwithspraycarburetter of the Longuemaretype. Thetanks for oil and petrol are specially large, and the regulating levers are placed in a convenient position well forward on the horizontal tube. **Waddington& Sons Motor Company**, of Middlesbrough, show a 3hp motor-bicycle. In this the motor is □ðtted vertically in between the main tube and bracket, the crank case being bolted through to special lugs. A silencer, cylinder, and combustion head are in one piece, and the inlet and exhaust valves are readily getatable. An excellently-designed machine is made by a Dutch □ðrmhaving the fearful title of the **Haarlemsche Automobielen Motorrijwiel Fabriek** of Heemstede-Haarlem. Thegeneral lines upon which the machine is built are distinctly pleasing. Themotor is an 'Altena' mounted vertically in a frame of special design, and develops 2hp. Theignition is eīected by a magnet which □ðresatanyspeedfrom 200-2,000 revolutions, and it is possible to advance or retard the ignition easily. Thecontrol is eīected by two handlebar grips. Drive is by means of a □ðatbeltonto a turned wood pulley clipped to the wheel spokes. A Bowden rim brake is □ðttedtotherear wheel. A large well-sprung saddle and eīicient mudguard are also features of the equipment. **The Bimlington**



"A Motor-Bicycle of Dutch Design and Manufacture."

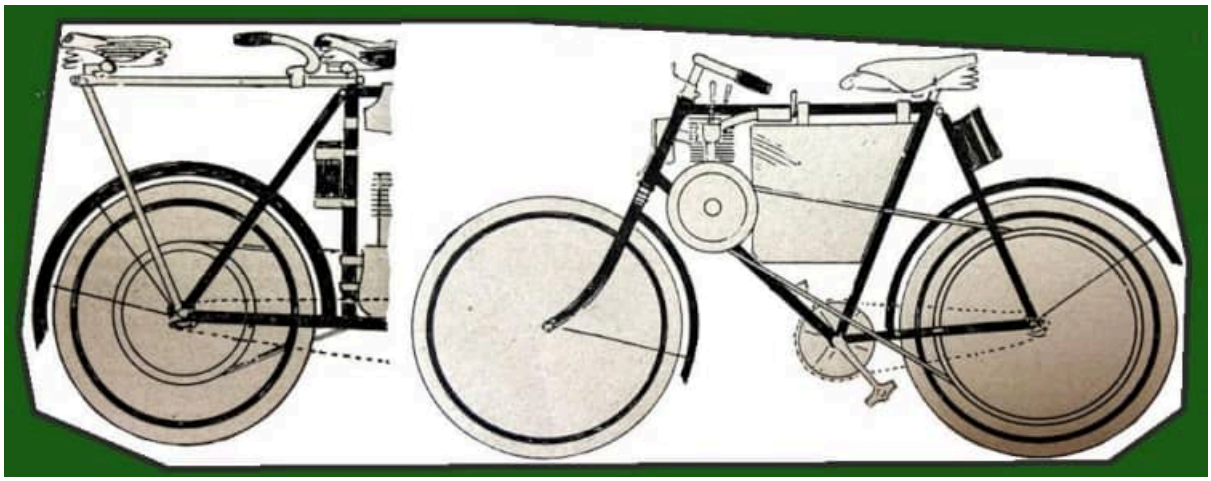
Carriage Co show the 'George Eliot' motor-bicycle. The novelty about this lies in the crank case of the motor, which is built into the frame. The carburetter is of the surface tips. Duplex front forks are □ðtted, and also very eīective brakes. Price, with Clincher tyres, £45. **Shippey Bros**, King Street. Cheapside, London, exhibit a couple of typical American machines. One is the 'Merkel', made by the Merkel Manufacturing Company, Milwaukee, Wis, USA. The motor is 2¼hp, well supported in an inclined position inside the frame. The carburetter is placed close up to the inlet valve, and petrol supply and coil are carried in a case supported from the top tube. The batteries, of the dry type, are carried in a rather bulky case on the back forks. The drive is by as endless raw hide belt, adjusted by means of a jockey pulley. A back-pedalling hub brake is provided. Control of speed is eīected by adjusting the spark. The other machine is the Thomas Auto-Bi, made in Buīalo, NY. The motor is placed in between the seat-pillar and bracket, and takes the place of the diagonal. The petrol is carried in a tank supported on the back stays, and coil and battery are carried in cylindrical cases fastened to the main tube. The silencer is provided with a cut-out for fast running. Lubricating oil is carried in the top tube. **The West London Cycle and Motor Repository**, Walham Green, show the 'Rocket' motor-bicycle. It is □ðttedwitha2hp vertical motor, spray carburetter, coil ignition, valve lifter, and large petrol tank for 150 miles, and is priced at the remarkable low □ðgureof£35, excellent value, as will be admitted. A similar machine with a 2¼hp motor is £37 10s. The Ewart-Hall motor-bicycle, made by **Ewart-Hall**, Goldsmith Street, Nottingham, has a 2½hp motor placed inside the frame, and driving by means of a Lincona belt. The motor cylinder and head are in one piece. Ignition is by a trembler coil. The carburetter is the □ðrm'sspeciality, extremely-simple and eīective. Price £45. The Holden motor-bicycle is to be seen on the **Motor Traction Co's** stand. It is probably the only direct driven type of machine on the market. The FN 1¼hp motor-bicycle is also shown, and these are being sold at £37 10s. each. **JLucas & Son** had a most interesting show of motoring accessories. A speciality was shown in the 'King of the Road' head lamp. Back lamps, burning petroleum, could. be seen, in which the new locking device on the oil vessels was □ðtted. Other

accessories were motorcycle lamps, cyclorns, motorcar horns, lifting jacks in various sizes, and also samples of the Wells Lucas motor oils. The **Starley**



"The Starley Motor-Bicycle."

motor-bicycle was on view in the Ducal Hall. The design of frame is rather novel, the motor being placed vertically just in front of the bracket, and special stays run from the crown to the diagonal. The motor is the AV, 2hp, with a stroke of 3in, bore 2 9/16 [336cc]. It has inside □ðywheels weighing 12lb, the motor complete weighs 23lb. The carburetter is a □ðoat-feedspray. The petrol tank is □ðttedtotheframe without clips and has a capacity for 140 miles. The contact maker is of the brush type actuating a trembler coil. The accumulator has a capacity equal to 1,000 miles running. The front fork is of extra strength, and the steering column is made of thick butted tubing. Brakes consist of a front rim and a back-pedalling type. The drive is by means of a belt. The general □ðnishabout the machine is of the best possible. The price



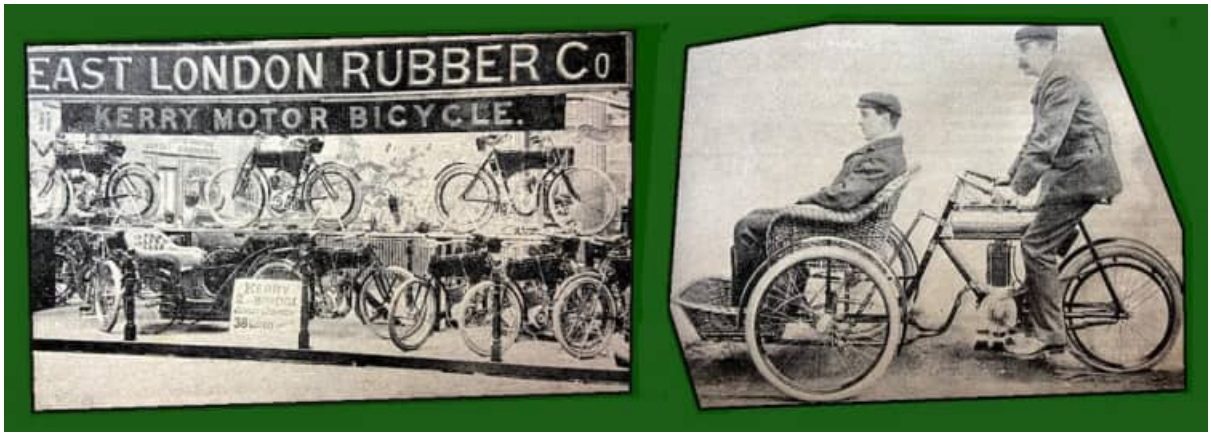
"The Barter Tandem Attachment." (Right) "The 'Ixion' 2hp Motor-bicycle. Shown by the Primus Motor Co, Loughborough Junction, SE."

complete with gear case is 50 guineas. **JH Hobson**, Basinghall Street, London is showing the Rudge-Wedge motor-bicycle, in which the 1¾hp motor is placed inside the frame. The drive is by

means of a V-belt. The lubricating pump is placed alongside the steering socket. Ignition is high-tension electric. The petrol tank has a large petrol capacity, and all the bicycle components are of special strength. The mount is excellently □ðnished and equipped. Price is £40. The new electro-catalytic ignition plug is also shown on this stand. The **Eagle Engineering and Motor Company**, Oak□ðeld Road, Altrincham, Cheshire, show six 'Eagle' tandems. These machines have practically all the equipment of a small car, including a water-cooled De Dion engine of 4½, 6 or 8hp to order. It can be had □ðtted with wheel or lever steering as desired. The front carriage is comfortably sprung and upholstered, and the drive is by special chains, having two speeds. Ignition is on the usual high-tension electric system. The machine is equipped with eïective mudguards, particularly the driving wheel, and the band brakes □ðtted are very powerful. **W King and Co**, Cambridge, stage four chain-drive motor-bicycles with 2¾hp motors. These have a patented spring transmission device and free engine. The carburetter is an FN spray, and the motor is the well-known Kelecom. Regulation is by throttle and spark advance. An eccentric bottom bracket adjustment is provided for the pedal chain, and draw bolt adjustment for the motor chain. Tyres, special Palmer. Another machine is □ðtted with the Minerva. motor. Price £42. Chain drive 2¾hp, £52 1Os; 2¼hp,

"The Barter Motor-bicycle made by Humpage, Jaques and Pedersen, Ashton Gate, Bristol." (Right) "The Kerry Motor-Bicycle."

£50. **Dennis Bros**, Guildford, show an elaborately □ðnished motor-tricycle and quad. The motors have water-cooled heads and two-speed gears. The drive is by means of gearing. The carburetter is a large spray type, and ignition is by coil and accumulator. A novelty is a back rest attached to the saddle, this also having unusually long springs. The free engine clutch and gear are actuated by a lever on the right of the saddle. The quad has a Dupont two. speed gear □ðtted. The fore-carriage on this machine is very nicely □ðnished. This is priced at 115 guineas, and the tricycle 82 guineas. The **Rex Motor Manufacturing Co**, Coventry, have a good show of 'Rex' motor-bicycles. These are all □ðtted with 2¾hp motors. The machine embodies many special features, including vertical engine and strong mode of attachment to the cradle in frame. The silencer is incorporated with the exhaust chamber, giving a very neat □ðnish. The carburetter is a specially designed surface pattern, giving a good supply of gas under any condition of atmosphere. Ignition is high-tension electric, and transmission by special V-belt. Ample brake power is provided, and a good point is the ratchet positive

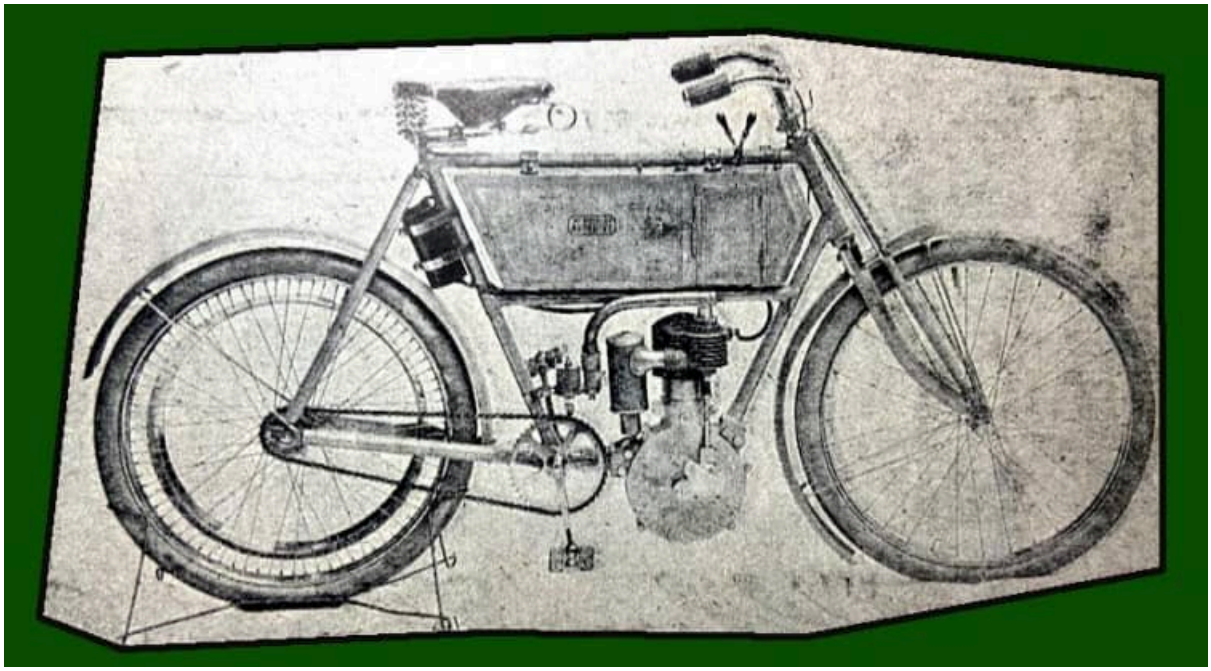


"The Exhibit of the Kerry Motor-bicycles, staged by the East London Rubber Co." ("Right) The Eat fore-carriage attachment."

adjustment for the spark advance. The □ðnishthroughoutis excellent. **Humbers**, Beeston and Coventry, make a splendid display of their chain drivers, □ðttedwith1¾and 3hp motors. Spray carburetters are now □ðtted,andaspecial feature is made of the ignition, which is high-tension electric with trembler coil. The'Olympia' forecarriage combination, with 3hp motor, is □ðnished oī in the □ðrm'sbeststyle.Inaddition, a tricycle is also staged. This is particularly neat in design, and follows the lines of the standard bicycle to a large extent. A tradesman's light carrier is the latest departure of the □ðrm.Incombinationwith a 3hp motor, this looks a thoroughly useful machine. The **Fire□ðyMotorCo**,Croydon, display several 'Excelsior' motor-bicycles. Several of these have the 2¾hp motor □ðtted,andone has a standard Minerva 2hp motor □ðtted.Thefront forks are carried right to the ball-head, giving great strength to the fore part of the machine. Large mudguards, ample brake power and □ðrst-classequipmentthroughout are notable features. **Branson, Kent and Co**, Goswell Road, London, EC, show a very complete line of accessories, for motor-cycles and cars. Notably amongst these are the BKsparking-plug, the BK non-slipping pulley, accumulators, belts, coils, voltmeters, etc. A 'Royal George'motor-bicycle is shown. This is equipped with the 1903 2hp Minerva motor with mechanical inlet valve and spray carburetter and V-section belt drive. It is a well-□ðnishedmount at a reasonable □ðgure.**J van Hooydonk** is showing seven motorcycles □ðttedwiththe New Minerva 1¾, 2, and 2½hp motors. Theseinclude one 'Phoenix' tandem; priced at £60; one 'Phoenix' tricycle with 2½hp motor, £57 10s; and the New Phoenix'Trimo' attachment, £60. In addition a new variable gear will be shown suitable for motor-cycles, belt, chain, or gear driven. Thewhole of the exhibit is

“A very useful Motor Spanner shown by the South British Trading Co.” (Right)“Mica Window Veil (Dunhill).”

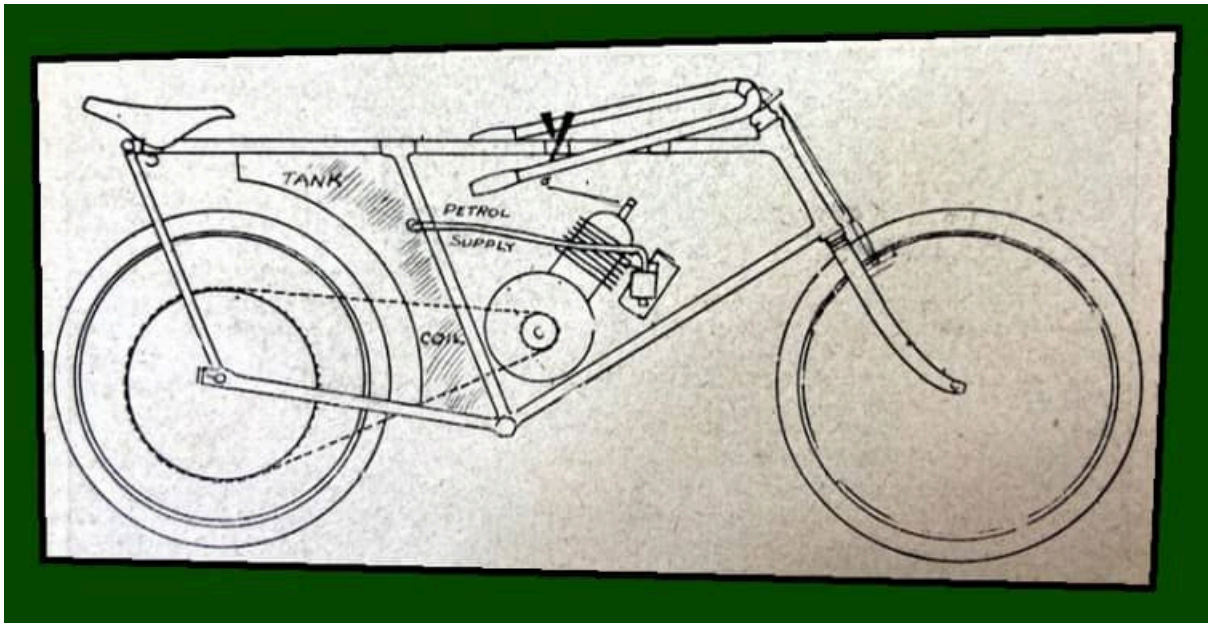
characterised by excellent □ðnishandequipment. The **‘Rising Sun’ Motor Works**, Brockley, London, SE, show the West□ðeld‘Autobike’.This machine is □ðttedwitha well designed 2¾hp motor □ðxedverticallyinthe frame between the down tube and bracket. Thecarburetter is an FN spray, and ignition by coil and accumulator. Regulation is by two levers only. A tandem □ðtted with the ‘Kelecom’ engine looks a thoroughly well-designed and □ðnishedmachine.Therearpart of the frame is dropped to accommodate a lady. The‘Leonard’ Avant Trainattached to an autobike is one of the neatest things of its kind we have yet come across. It is provided with large-diameter Clincher tyres, is well sprung, and has a



The West□ðeldAutobike.

very simple and eīective attachment. It is priced at 11 guineasnet. Another motor-bicycle is also shown, with motor placed behind the diagonal. This is characterised by an excellent □ðnish. A full rangeof parts are also shown. **Douglas S Cox**, Selsdon Road, West Norwood, London, SE, shows Minerva and Ormonde machines and a new line in the 1903‘Barter’ motor. Thedrive in this machine is bya wide □ðatbeltrunningfrom a pulley keyed to the 2 to 1 shaft. Thecarburettor it a □ðoat-feedsprayandignition is by coil. A tandem attachment is □ðxedtothismachine.

The.motor develops 2¼hp, and the price complete is 40 guineas. A novelty on this stand is a featherweight 1½hp racing motor-bicycle. This has a direct chain drive, long wheel base, spray carburetter and coil ignition, and scales a little over 50lb. It



"DS Cox's 54lb Racing Motor-Bicycle."

can be handled easily with one hand. Barter motor-bicycles are manufactured by **Humpage, Jacques and Pedersen**, Ashton Gate, Bristol. The working parts of this motor can be inspected. A novel point about it is that the □ðywheels, instead of being □ðxed to a running axle, are mounted on □ðxed pins, the real driving axle being that carrying the 2 to 1 gear." "The **Greville Motor & Cycle Co** had a motor-bicycle on view presenting some novel features. The 1¾hp motor is mounted inside the frame between the down tube and diagonal. It drives from a two-speed pulley by a round belt on to another pulley mounted on an adjustable bracket clipped to back forks and compression stays. This wheel carries a small pinion, which gears into a toothed ring, keyed to the driving wheel hub, and thus gives the necessary reduction in gear. The drive, although short, seemed eīective, and the double pulley on the motor shaft allows of a reduction of gear being made simply by taking the belt oī the larger pulley, then shortening it, by giving it a few twists, and placing it on the smaller pulley. Thus, if the rider comes across a stretch of hilly road, or has a head wind against him, he can easily reduce the gear to meet the adverse conditions. The **Bowden Patents Compan**y have now adapted their transmission wire to a special form of throttle valve suitable for motor-bicycles. It consists of a hollow piston that can be drawn up against a spiral spring, and which gradually reduces the area of the supply pipe till it is quite closed. It can, of course, be worked from the handlebar by means of a ratchet or friction lever, but the company recommend the twisting handle as being more capable of delicate adjustment. The valve complete, with wire and twisting handle, is priced at 30s.

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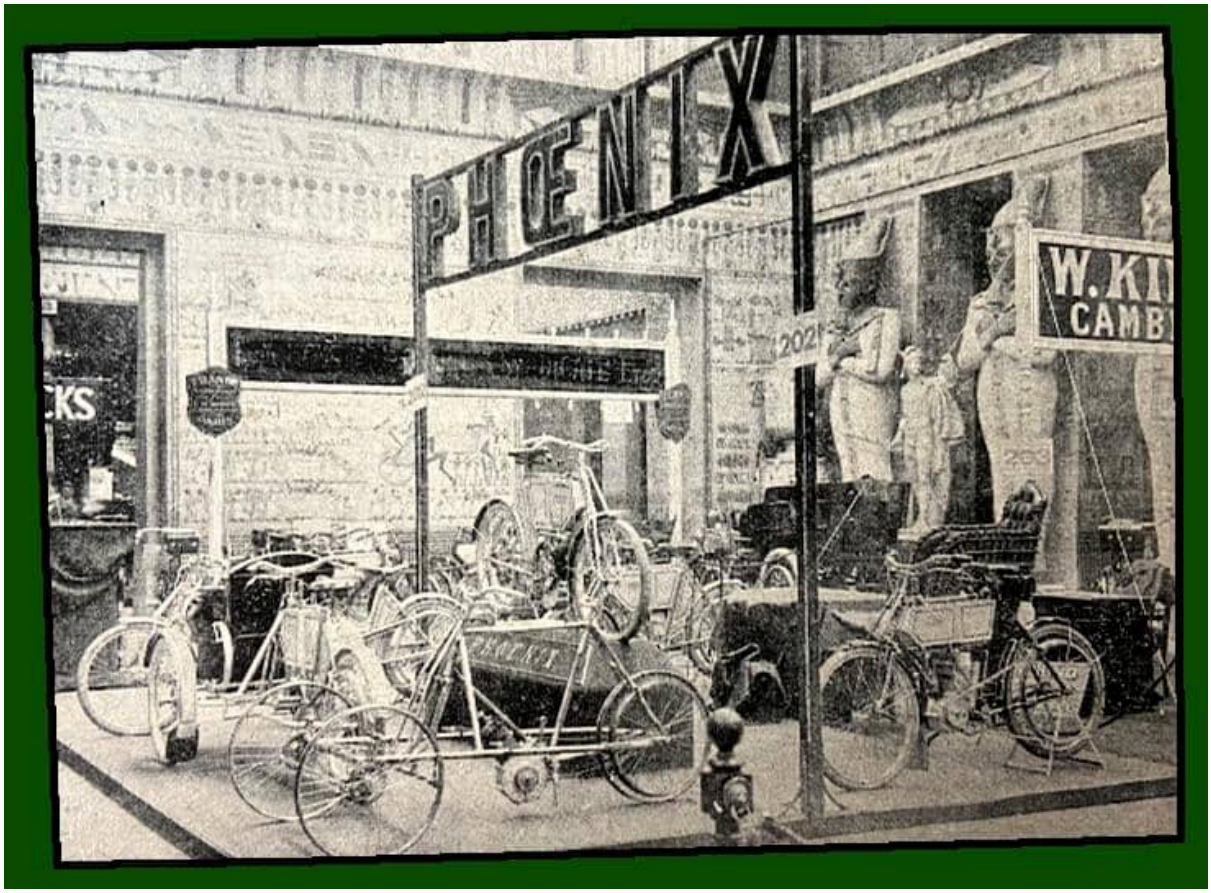
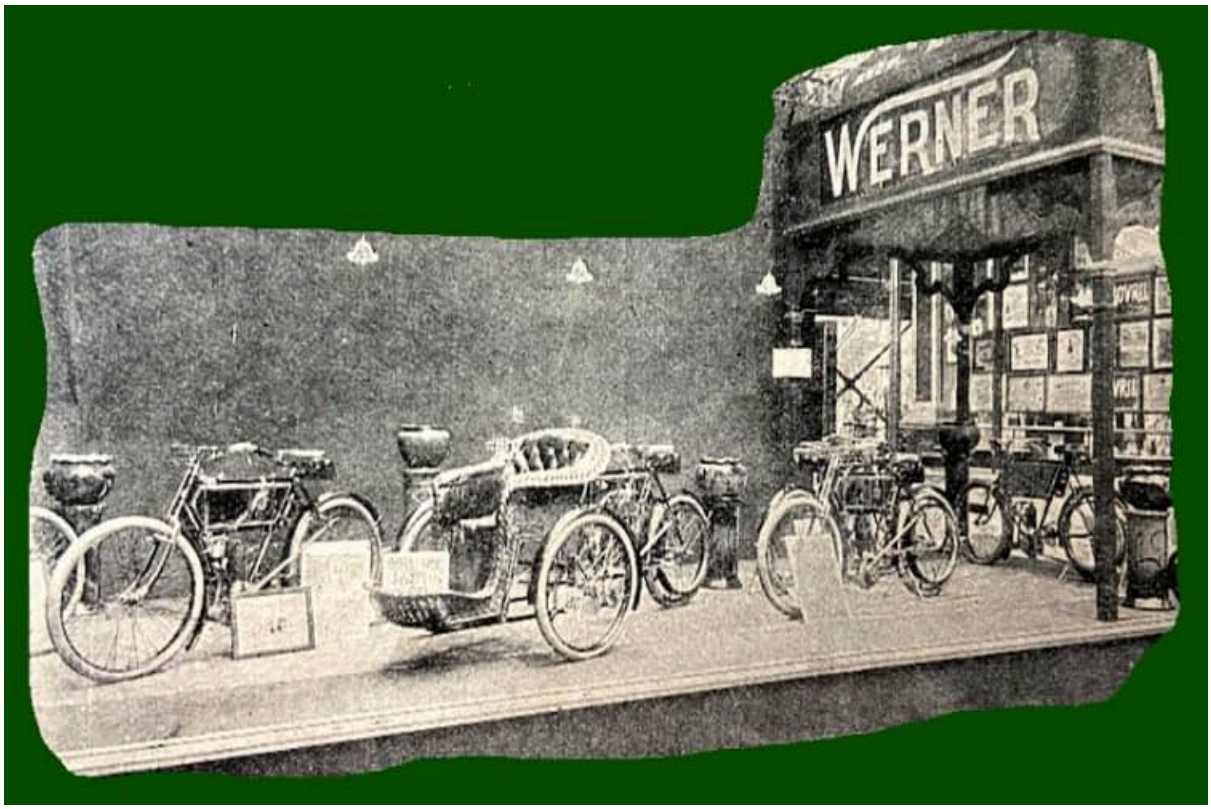
"Where the sign of Motor Cycling appeared for the last time, at Earl's Court Exhibition. Future signs will bear the title The Motor."

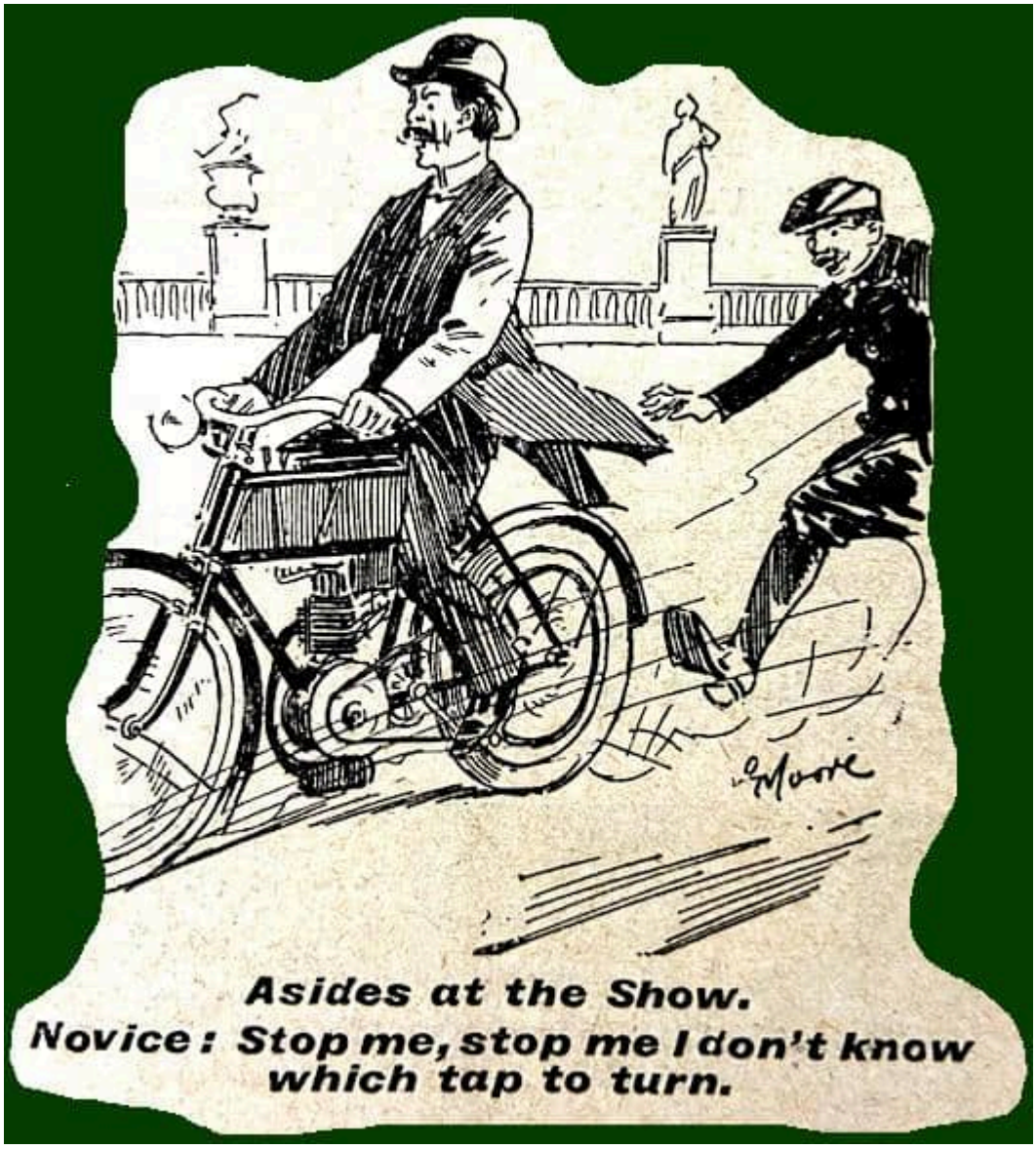
“The Bat Exhibit at the Crystal Palace Show.”



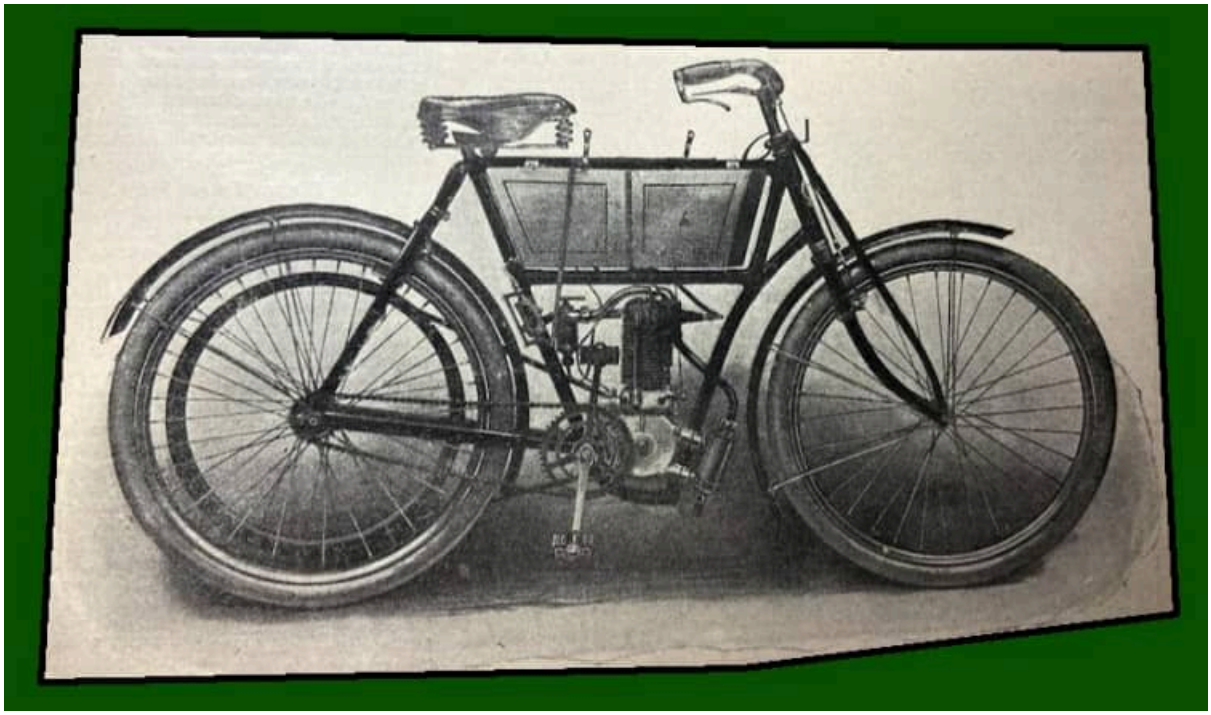
"Where the Phoenix Motor-Bicycles were Shown."



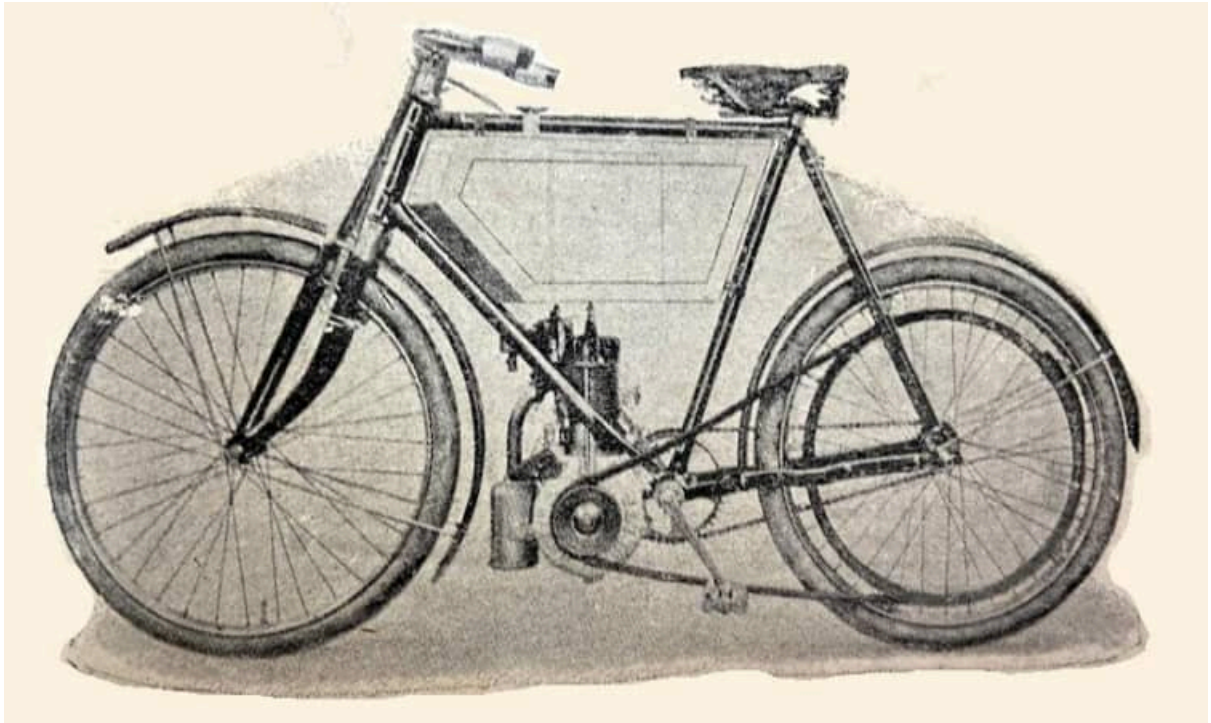
"The Exhibit of Werner Motors."



"THE 1903 NEW HUDSON motor bicycle possesses many distinctive features, chief amongst which is the special frame. The engine is the New De Dion of 2hp placed vertically in a particularly well stayed frame, and duplex front forks are □ðtted. The tread is very narrow, being only 5½ inches. An exhaust valve regulator of novel design is incorporated, giving facility for easy starting and very quiet running in traïic. The contact breaker is of the positive-make pattern, and the accumulator has a capacity of 20 ampere-hours. The carburetter is a special form of □ðoat-feed spray. Petrol capacity is equal to 100 miles running—about one gallon. Lubrication is eïected by a very ingenious form of automatic sight feed lubricator patented by the New Hudson Company. With this device the engine can be lubricated by a slight movement of a lever, and on moving the lever back the lubricator □ðlls again ready for use. Drive is by means of a V-section belt. The weight complete is 87lb, inclusive of heavy motorcycle tyres. The □ðnish and equipment are of the highest possible class, and the price comes out at £45."



“The New Hudson Motor-Bicycle.”

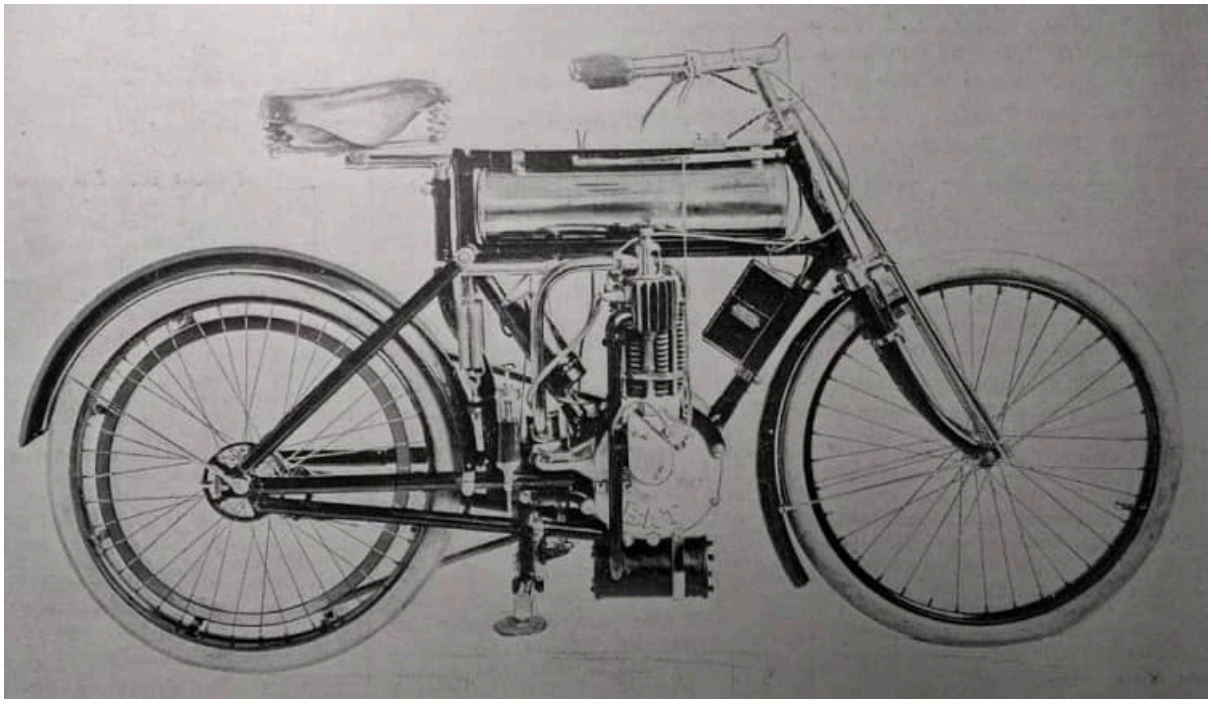


“The Weller motor-bicycle is made by Weller Bros, of West Norwood, London. The principal features about it are the vertical engine supported in a very rigid manner and the duplex front forks □ðtted.”

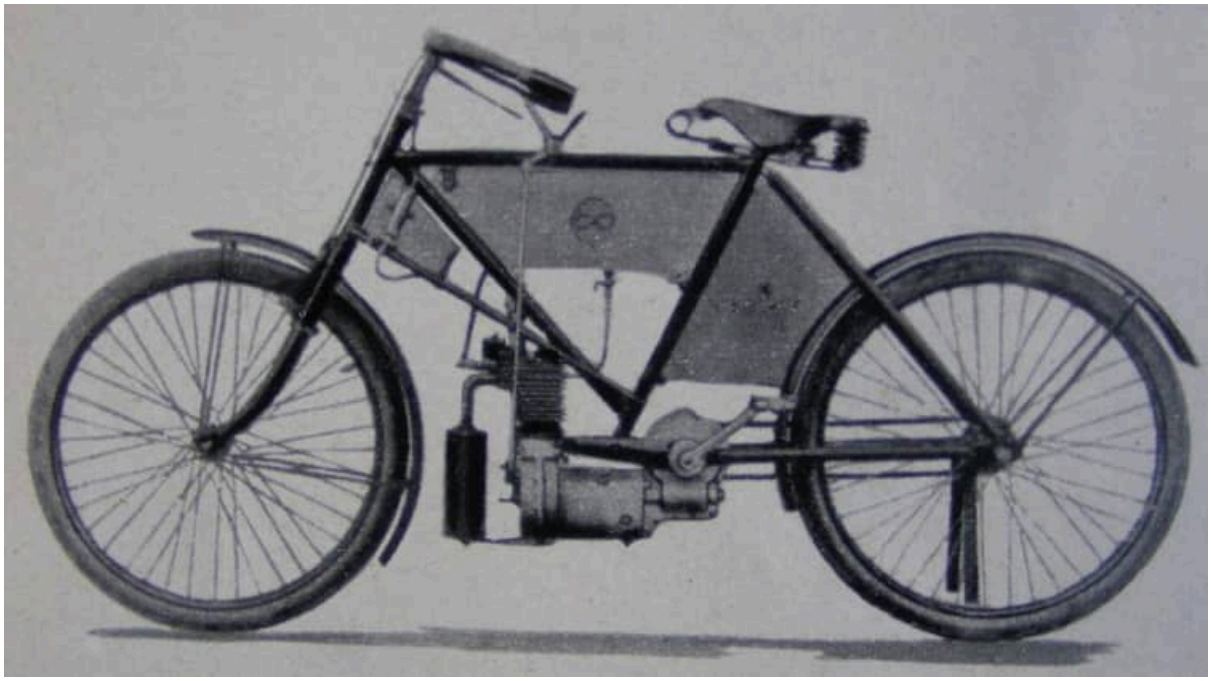
“THE KERRYMOTOR-BICYCLEhasrapidly worked its way into popularity. The engine is □ðnished with extreme accuracy, has two cranks, one on each side of crank chamber, thus securing absolute rigidity. The bore is 70mm, and the stroke 80mm. A full 2¼hp is developed at 1,400rpm. Both valves are easily accessible, and the timing gear can be inspected by the removal of □ðvescrews.Avery eīective automatic spray carburetter is □ðttedwithindependent throttle, and power is transmitted by a V-belt. The petrol tank will hold □ðvequarts,andthe

lubricating oil tank one quart, suīicient for a journey of 100 miles. Thegeneraldesign of the machine is symmetrical and pleasing. We have had an opportunity of trying the 'Kerry' machine on the road, and our experience with it fully con□ðrmedthefavourablereports we had previously heard. Themotor spirit used was the heavy .720 speci□ðcgravity,yetwehad no diīiculty in starting, the engine commencing its work at the □ðstfewturnsof the pedals. A good feature about the machine, we observed, was the absence of petty troubles. When a lever was adjusted it remained securely in position. Thejolting of a rough road did not advance the sparking or throttle the gas supply. Thepetrol tap really turned oī the spirit, and there was no leakage. The crank case especially is perfectly oil-tight and does not distribute the lubricant through faulty joints on to the belt and other parts of the machine. Perfection in these little details greatlyadd to the pleasure of riding. Themachine is comfortable to ride and easy to control. Thethrottle valve enables economical use of spirit, and by careful manipulation we accomplished a journey of 100 on one charge of petrol, and at the □ðnishthetankstill contained a small supply. The makers under-rate rather than over-ratethe capacity of the machine, so that when it is discovered to do more than is claimed for it satisfaction is assured. We gaveit a further trial, with a trailer and passenger,over a fairly hilly road with good surface. Without distressing the engine, an averagespeed of 16mph was maintained."

"IT HASBEENMYLOTto attend many a cycling club dinner, and on occasions to really enjoy myself, but the □ðrstannualdinnerof the Motor Cycling Club was absolutely the most enjoyable function in all my experience. Thesameness of the averageclub dinner, the coldness of Englishmen when dining with strangers, the uninteresting character of the majority of the speeches and the usual lack oī freshness about the musical programmeall tend to send one homewards with a feeling of gladnessthat 'that is over'. TheMCC dinner was totally diīerent to all this, not only in itself, but in its eīects. Therewere no laudatory speeches, not a touch of harmony except when we spontaneously sang, unaccompanied, 'Auld Lang Syne'. But for all that—no doubt, in consequence thereof—the eveningwas enjoyable in the highest degree and the end came all too soon. Theprogramme was unique. In fact, my lengthy experience does not enable me to recall anything of a similar nature. Fivesubjects were brought forward for discussion, the introducer being allotted ten minutes for the reading of his paper or for his speech, whilst a further ten minutes was allowed for discussion. Thusthe whole thing was 'sparked up', so to speak: the author of a paper had to keep to the point in order not to exceed his time limit, and then a series of short, sharp criticisms would follow, and, as a consequence, the hour and three-quarters spent on the □ðvesubjectswas gone as is if in a □ðash. ThenMrSF Edge,who made an admirable chairman, interested everybody with his comprehensive survey of the whole of the subjects, and he cleared up one or two matters in a way which one would not unnaturally expect from one of his experience. TheMotor Cycling Club has set an entirely new fashion in dinners, and I hope to seethe idea extensivelyadopted. Of course, with such a `live subject " as motoring, and with so many points about it at issue, there is much to talk about, and will be for some little time, time, for which fact let us be truly thankful."

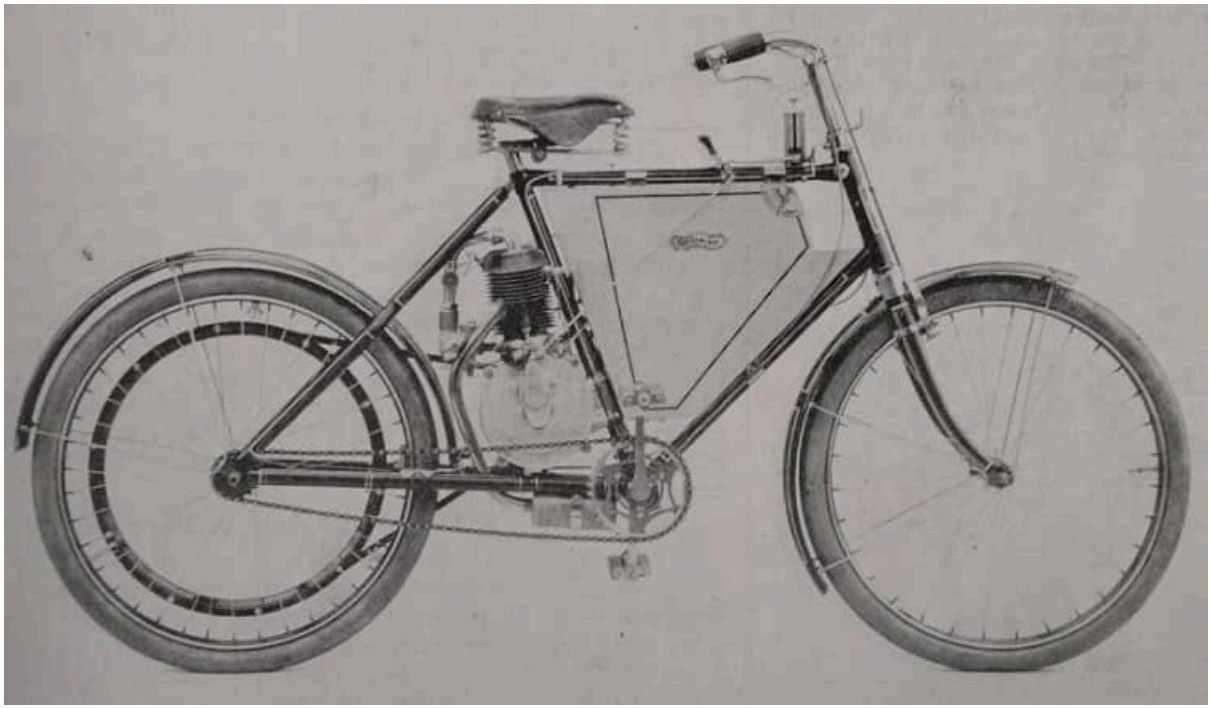


The Blue 'Un gushed: "Perhaps no motor bicycle has so rapidly made an excellent name for itself as the Bat. It is designed with the one idea of making the machine thoroughly reliable, strong, and powerful, and its speed properties are such as to cause it to stand out conspicuously by reason of ita wonderful performances on the track. The machines does not require pedals, as by means of the Bat pulley slipping is overcome, and the machine will carry the rider up very steep hills. The machine can also be had with a patent spring frame."

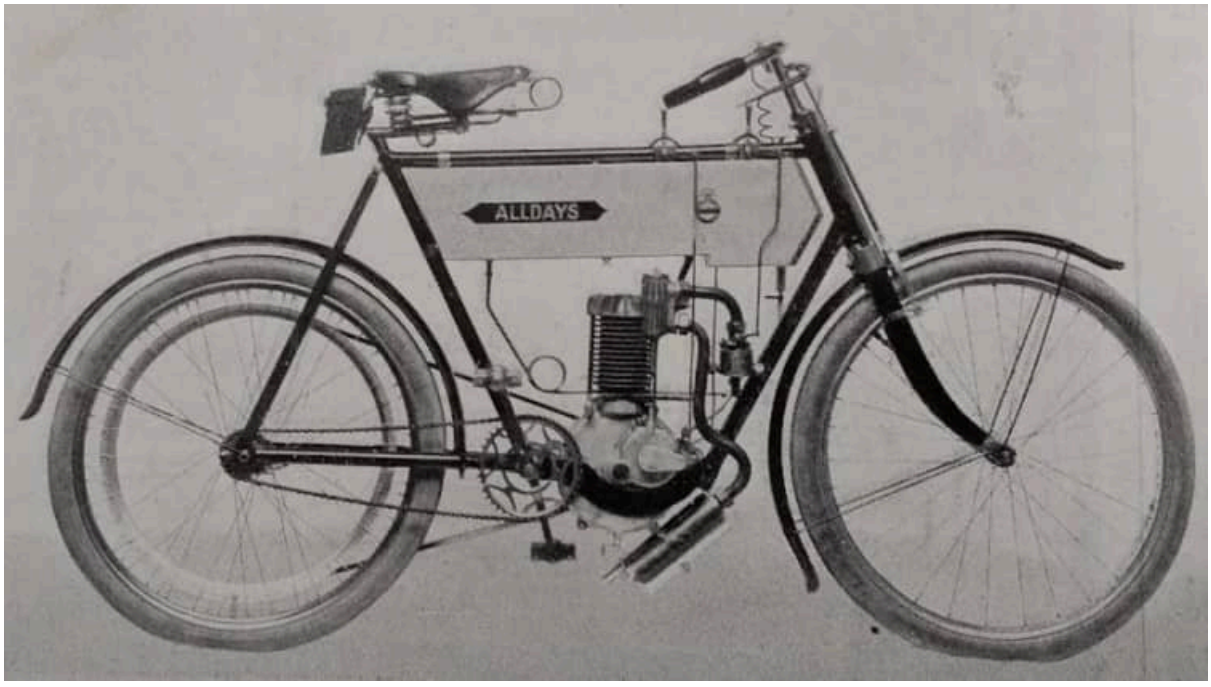


The Starley, which only survived for a matter of months, was noteworthy for the transverse engine layout and two-speed transmission.

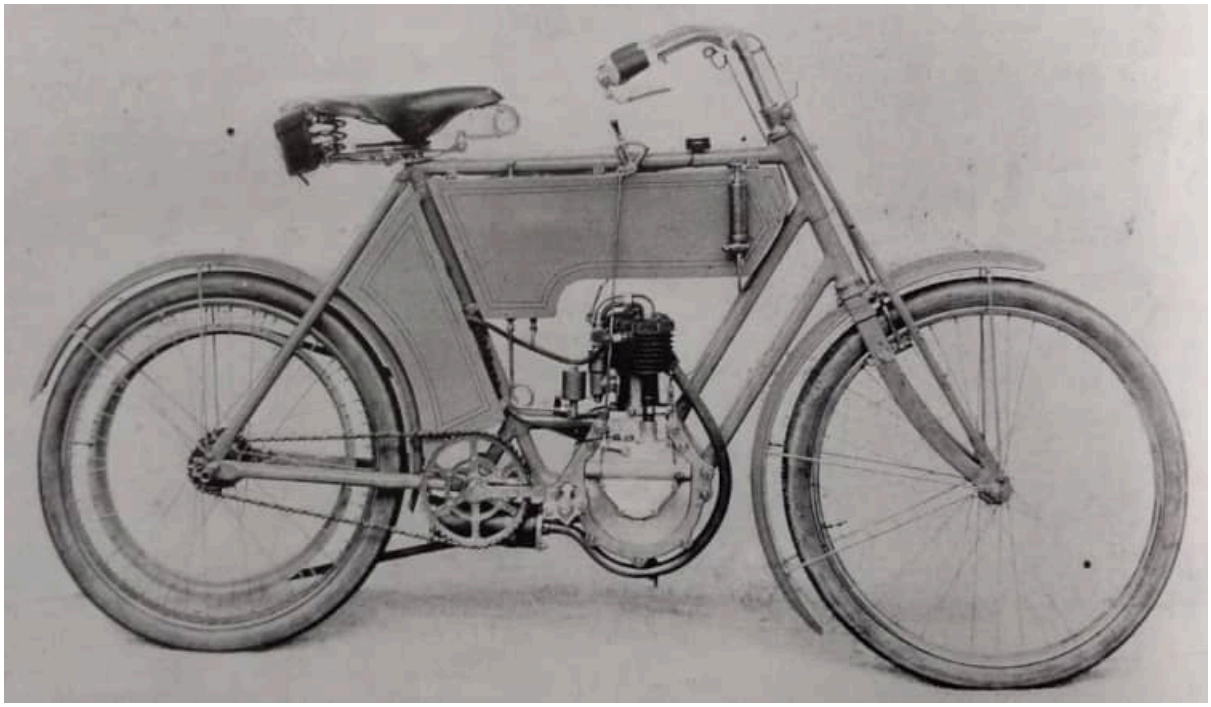
The US-made Auto-Bi was well established in its home market and had found customers as far aðeldas Japan. This example, pictured with motor cycle dealer Lincoln Holland, features cantilever rear suspension with an enclosed spring behind the saddle.



Still looking very much a powered bicycle, the 2¾hp Ormonde boasted a petrol gauge, 'sight-feed lubricator' and 'gas throttle'.



Alldays and Onions could trace its history back to 1650; the □ðrm's latest motorcycle featured its own 2¼hp engie with a detachable head.

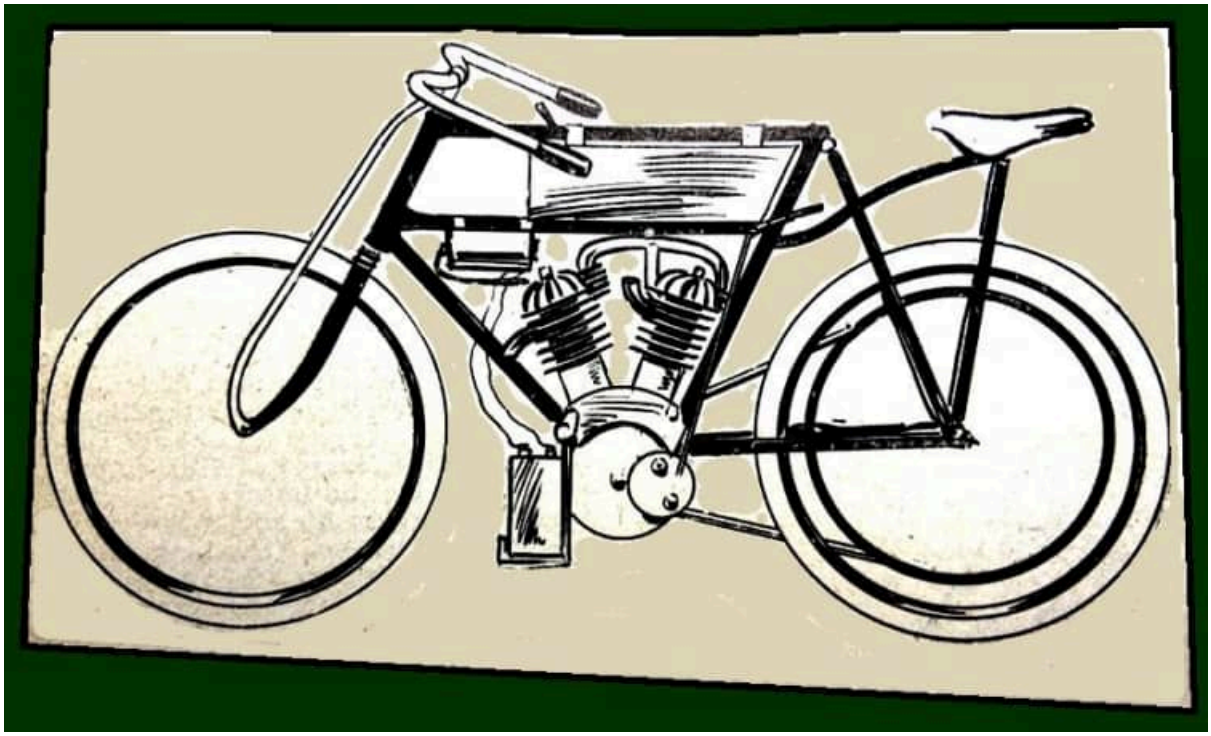


The Rover Cycle Co came up with a 2¼hp motor cycle with a state-of-the-art □ðoat-fedspray carburettor. The back-pedal rear band brake was complemented by a front rim brake.

S Wright of Coventry with his Excelsior racer and the cups he won at Canning Town, Southport, Barrow, Birmingham and Manchester.

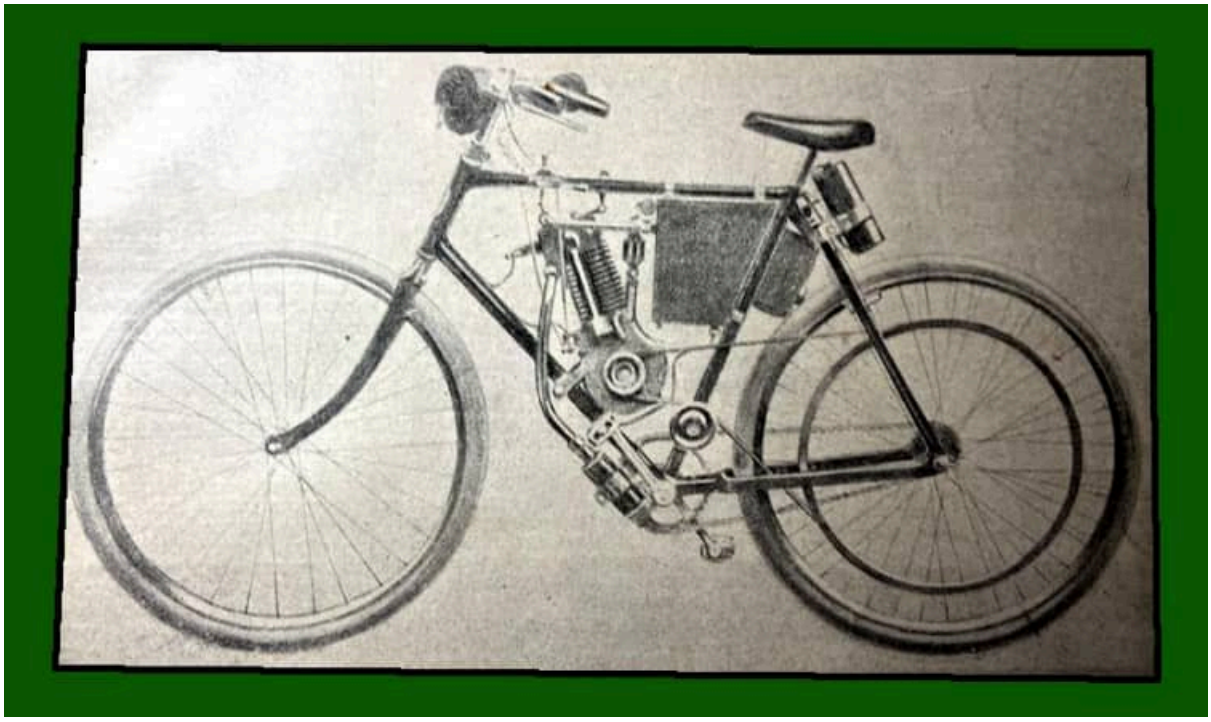
“Dr EJPower,of Atherstone, on his 4½hpHamilton motor bicycle, made by the Hamilton Motor Co, Coventry. Themotor has two cylinders, the bore and stroke of which are 2⅝x3in, the number of revolutions per minute being 1,900. Each cylinder can be cut out serparately at will. A special surface carburetter is □ðtted,which,itis claimed, combines the eīectiveness of the spray type with the simplicity of a surface. Themotor is thoroughly well made and the machine is a veritable □ðier,besidesbeing a remarkably easy starter.”

“The ‘Rochet’ racing motor-bicycle. Thetwo-cylinder motor is supported in a hollow arch-shaped lug joining the main tube to the bracket. Theaccumulator is carried on a bracket supported from crank case. No pedals are provided, but a pair of foot rests are screwed into the crank case. Themachine is also minus an exhaust box.”



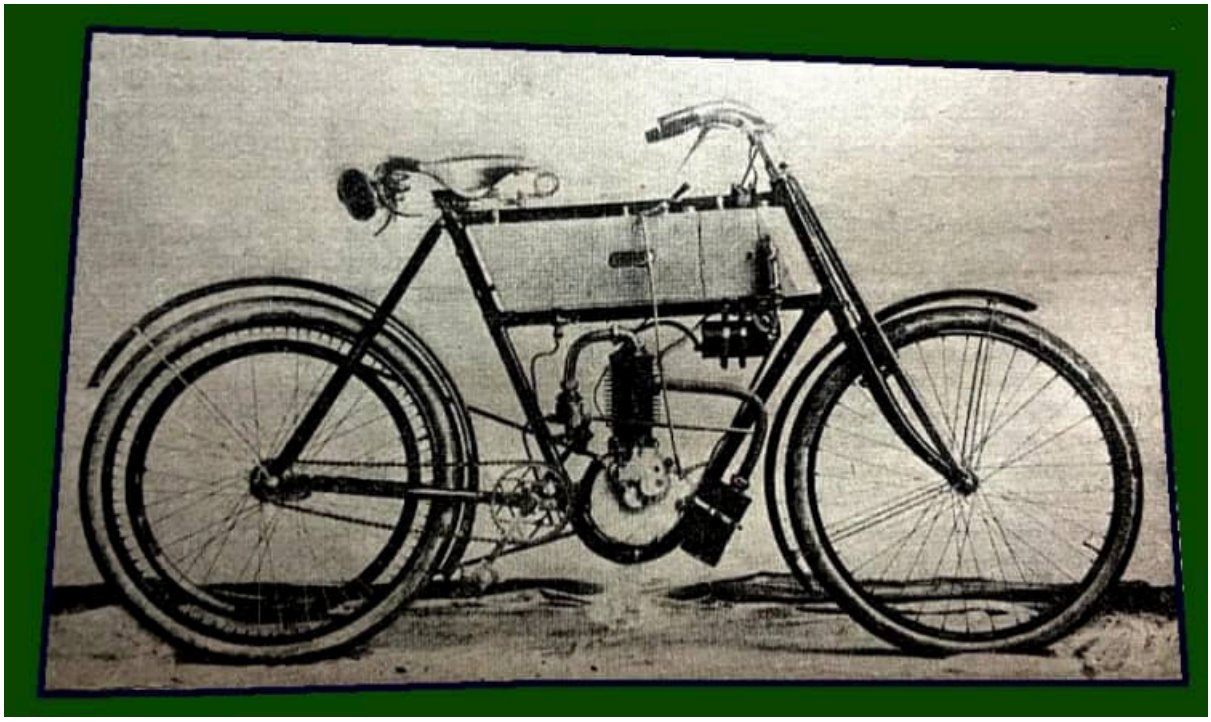
“The Rochet Motor-Bicycle.”

“WE ARENOW ABLEto illustrate a motor-bicycle built throughout by the celebrated French □ðrm of De Dion Bouton. Thephotograph shows clearly how the motor and its equipment are disposed on the frame but the spray carburetter does not appear on this particular machine. Themotor is placed inside the frame, with a small inclination forward. Thecoil is clipped behind the seat pillar, and the accumulator is carried in a case strapped to the diagonal. Thespark-advance lever can be seen right forward on the horizontal tube, and the exhaust valve lifter a little behind it. Thesilencer is carried well down alongside the bottom bracket. Thedrive is taken by a ⅜in round belt passing over a jockey pulley. Thecarburetter shown is the original De Dion surface pattern, with a warming tube coming up from the exhaust. Themachine complete weighs 85lb.”



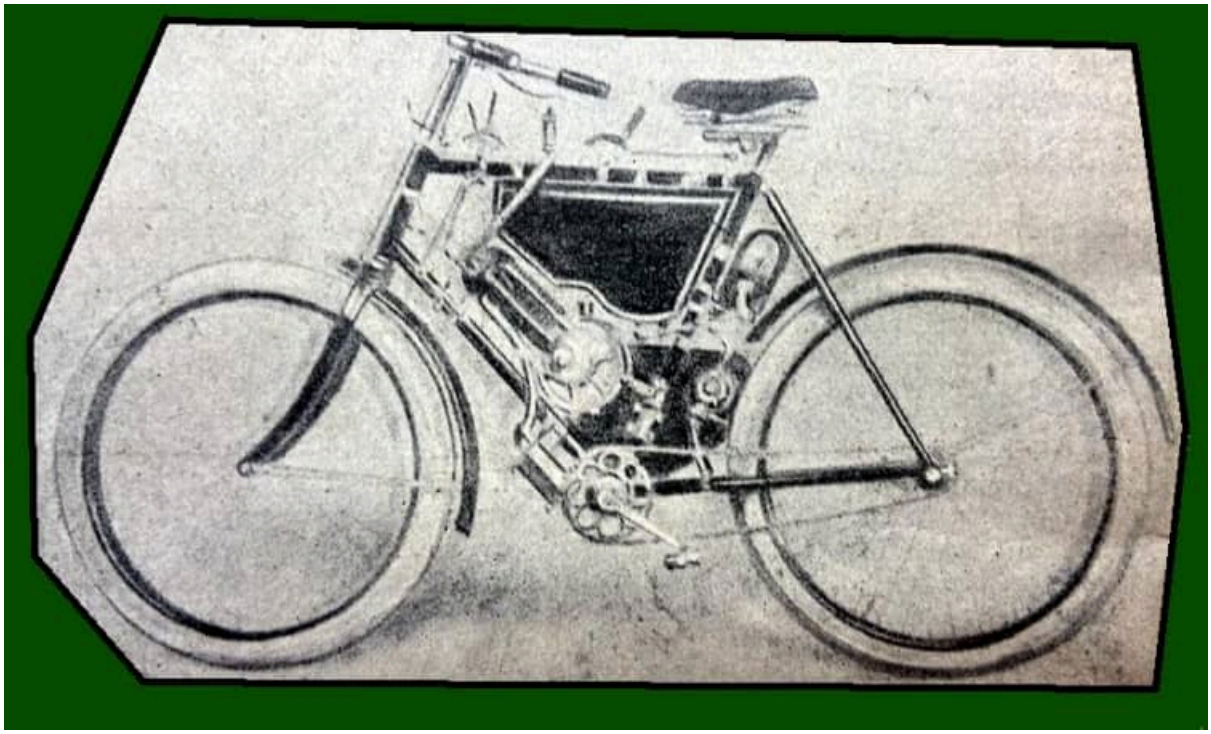
“Motor-Bicycle built throughout be de Dion Bouton.”

“RECENTLYWEHAD AN OPPORTUNITYinCoventry of examining and watching the behaviour of the latest product of the □ðrmofHobart,Bird & Co while a member of their staī rode the machine overthe greasy,muddy roads of that city. Thebicycle ran very sweetly, and so eīicient was the silencer that at a short distance the explosions of the motor could hardly be heard. The machine has been specially designed as a motor-bicycle. Thelength of wheel base at a □ðrst glance seems abnormal, but judging by the steady manner in which it ran over greasypatches and through heavymud, the machine is well balanced, thus aīording everysecurity against side-slip. Theengine is a 2¼hpBritish made throughout, and is bolted into the curved frame in a vertical position. A spray carburetter, with simple manipulation, is □ðtted.Thelubricatingpump is placed within easy reach of the rider ; in fact everydetail has been very carefully thought out to ensuresimplicity and eīiciency in the highest degree.Thepetrol capacity is equal to 120 miles.”



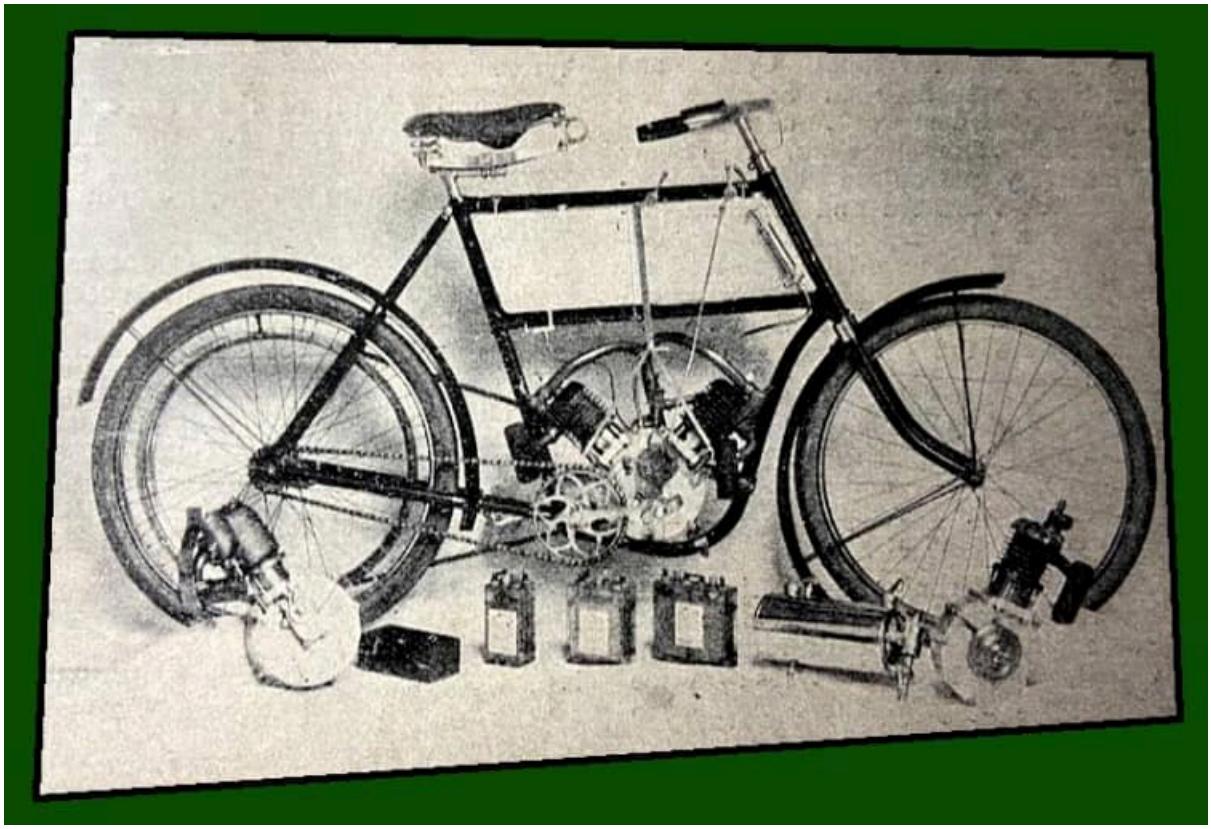
“The latest product of Hobart , Bird & Co.”

“THE TENDELOFFMOTOR-BICYCLE.Thismachinewas shown at the last German motor exhibition, when it created considerable interest. Thespecial feature about it is that the motor is started up by turning a crank by hand. Thetransmission is by means of a leather covered roller pressing on the rear tyre. This roller runs on ball bearings and drives oī the motor-shaft by a series of spur-wheels encased in a dust-proof box. Theignition is by means of a magneto actuated by a long lever from the motor 2 to 1 shaft. Theignition can be varied to give speeds between 6 to 25mph. Themotor is supported on the main tube inside the frame. Regulation of gas supply, lubrication and advance of spark is eīected by the levers mounted on the horizontal tube. Thecarburetter and petrol tank are supported under the horizontal tube. machine it is claimed, will take hills 1 in 10 easily.”



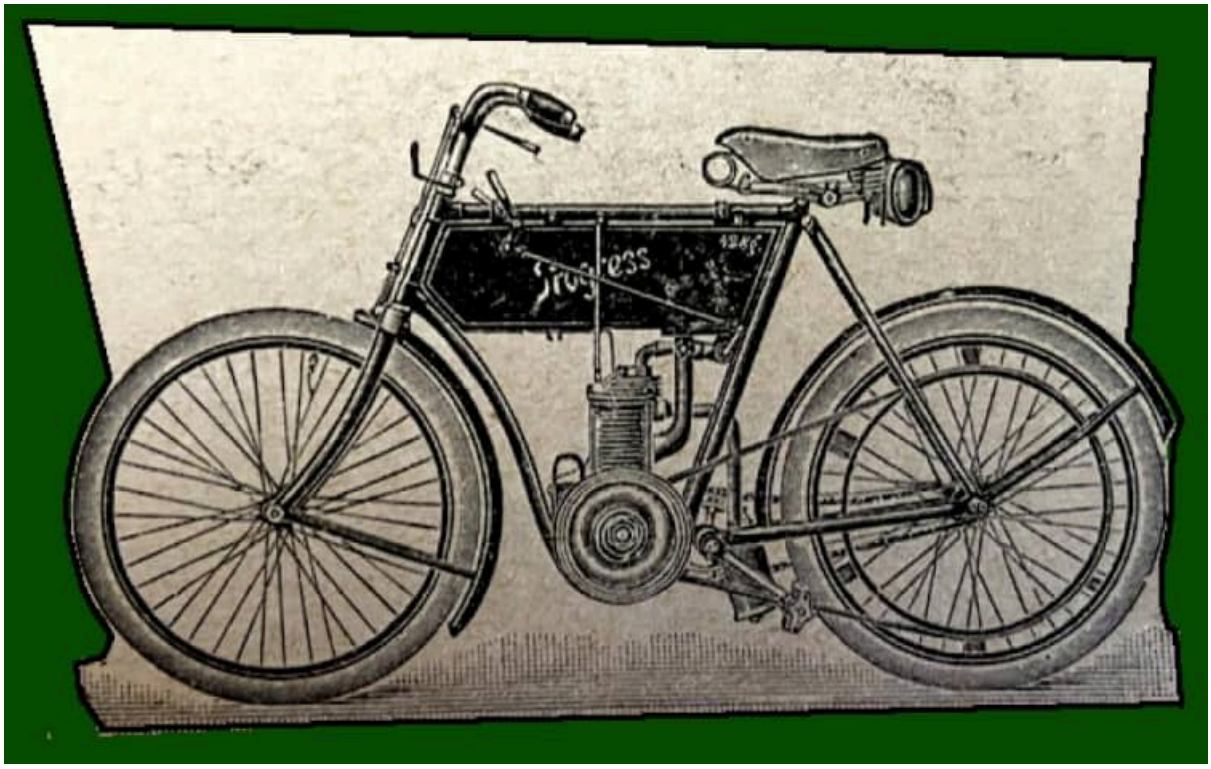
“The Tendeloī Motor-bicycle.”

“THE LIBERTY MOTOR-BICYCLE is being put on the market by Messrs J C Meredith, Summer Lane, Birmingham. The motor is a two-cylinder pattern, air-cooled, and driving by means of a belt. The machine i shown is of 2hp, but it can also be had in a 3hp size. The frame is provided with a wide loop, in which the motor is clamped. The carburetter is a special form of spray, which the makers claim works equally well with alcohol, petrol, or paraīin oil. Ignition is by means of an accumulator and coil, and lubrication is well provided for by a sight feed pump. A double exhaust valve lifter is provided, and speed is controlled by the spark advance. Alongside the motor-bicycle can be seen a single cylinder, air-cooled, and also a water-cooled engine of similar make, and both adaptable for motor-bicycles. Various sizes of accumulators and a rear frame petrol tank will also be observed.”



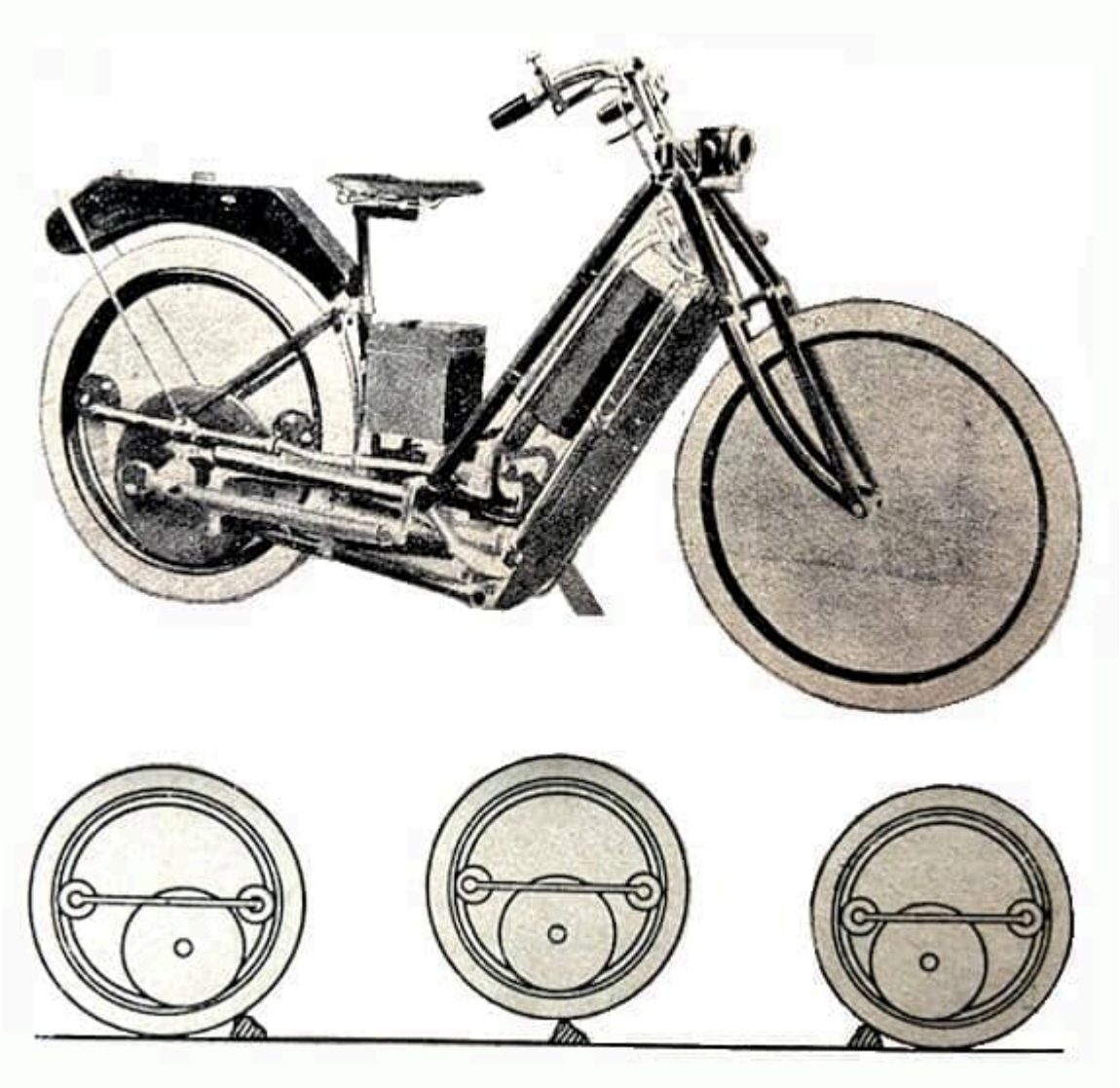
“The Liberty Motor-bicycle.”

“THE PROGRESSMOTORCYCLEWORKS,ofCharlottenburg, Germany, were one of the □ðrst German □ðrmstoconstruct a combination of cycle and motor, and the □ðrstpattern,which is still on the market, has the motor □ðttedoverthefront forks, which have been strengthened by a second pair of blades. The 1¼hp motor □ðttedisof very simple construction, and is □ðredby means of a special form of magneto-electric ignition. A single hand lever servesfor starting and stopping the motor, and also for the regulation of speed. A newly patented carburetter is used: it is of the surface type, and the tank holds four litres of petrol, suīicient for a 100 miles run. Another innovation is the spring bearingsof the motor attachment to the frame, giving vibrationless running. Thefront position of the motor provides eīective cooling and assures eīicient working. All parts of the motor are get-at-able, and are well protected againstdirt and dust. Theexhaustis well muīled, and is practically noiseless. Theweight of motor and ignition is 22lb, and that of the whole machine and accessories 75lb. A speed of 25mph is possible, and hills up to 10% gradient can be taken without the use of the pedals. Theignition is controlled by a slight movement of the brake lever, which instantaneously stops the working of the motor, a feature riders in traīic will appreciate. As soon as the lever is set free the motor is again started. The □ðrmconstructsanothermodel, in which the a 2hp motor is placed in front of the bottom bracket, and rests at the lowest point in a loop frame. Thecarburation is also automatic; six litres of petrol can be carried, suīicient for a distance of 150 miles. Theoil reservoirfor lubrication carries suīicient for 300 miles, and the pump works automatically. The2hp motor is equal to a speed of 35mph, and has proved very reliable.”



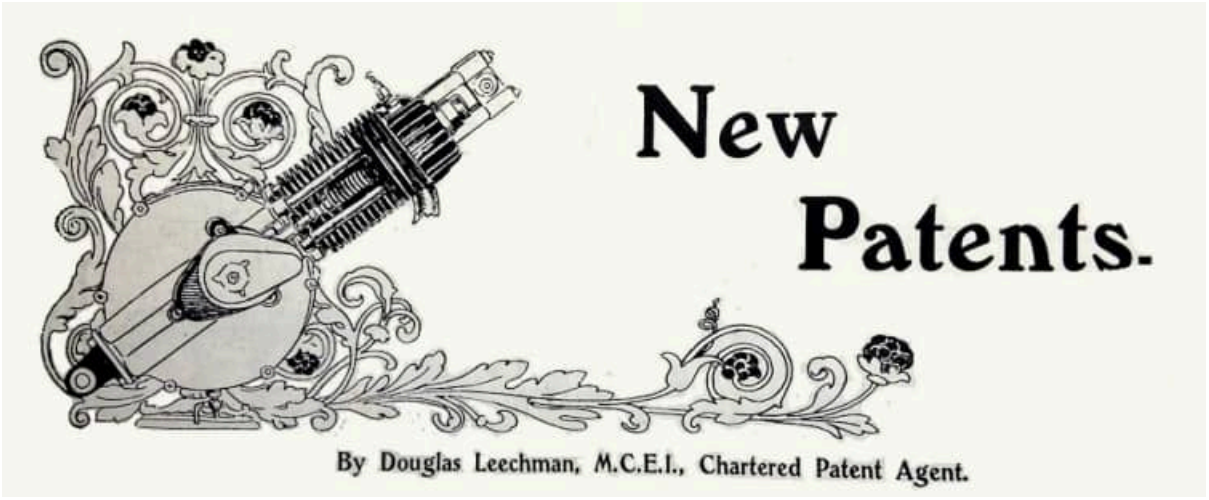
“The Progress Motor-bicycle.”

“CROWDEN’S IMPROVED MOTOR-BICYCLE, □ðttedwithdriving wheel on the rail-ring principle. An old Wolfmuller motor-bicycle has been converted, to test the principle of the rail-ring tractor, as applied to cycles. This machine, which was originally driven by a small back wheel direct, has now been substituted by a small heavy □ðy-wheelrunningina rim without any spokes, held in position by two guide rollers extended with springs. The invention, the makers claim, overcomes the diīiculties of driving direct, rendering the use of gears, chains and bands unnecessary. The arrangement also permits of great elasticity in running over rough ground and obstacles. The vibration of the engine and shock are not felt by the rider in any way, and with this driving arrangement a spring frame is not required. The machine was only adapted for experimental purposes to test the system which up to now, the makers say, has given excellent results. The bicycle can be □ðttedwithpedals, which permit of the engine being started or assisted if required.

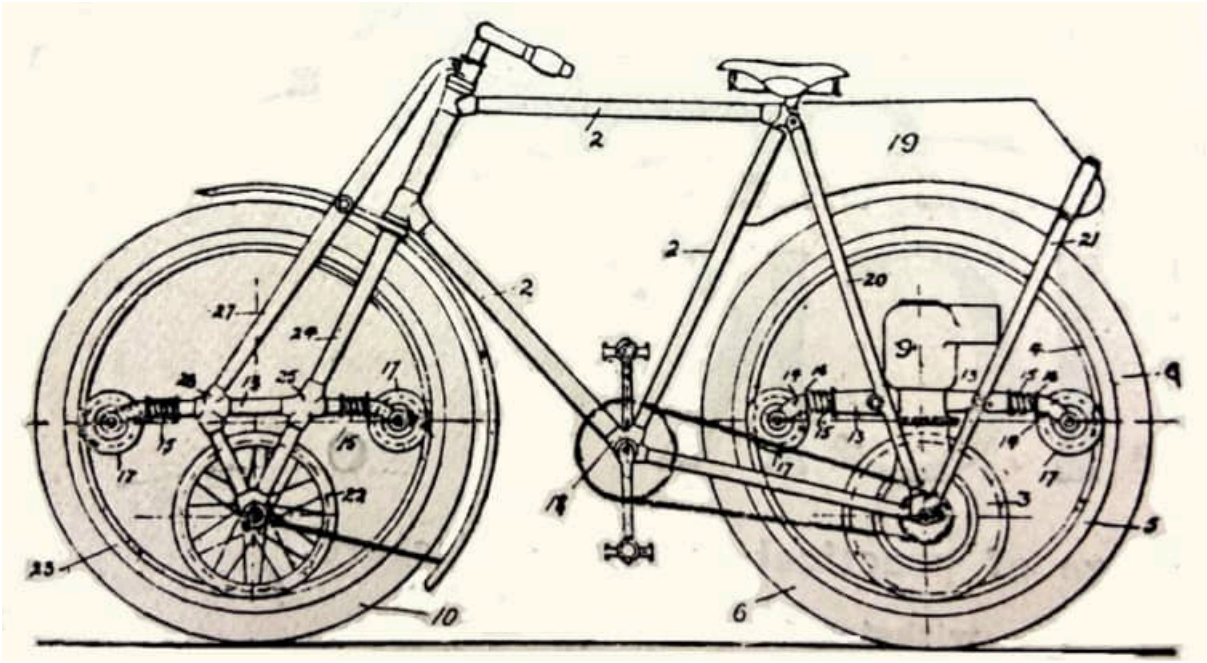


Crowden's Wolfmuller conversion. "Diagram illustrating action of ring tractor meeting an obstacle. It will be seen that the □ðy-wheelslightlyrunsup the incline of the ring, and the obstacle, displacing the centre of the ring, behind the centre of the □ðy-wheel,thisrecoilbeing taken up by one of the guide roller springs. Theforce of the spring is given back to the rail-ring, which assists levering the □ðy-wheeltoovercome the obstacle."

That was The Motor's description of the Crowden ring-railer; here's the same story from The Motor Cycle:

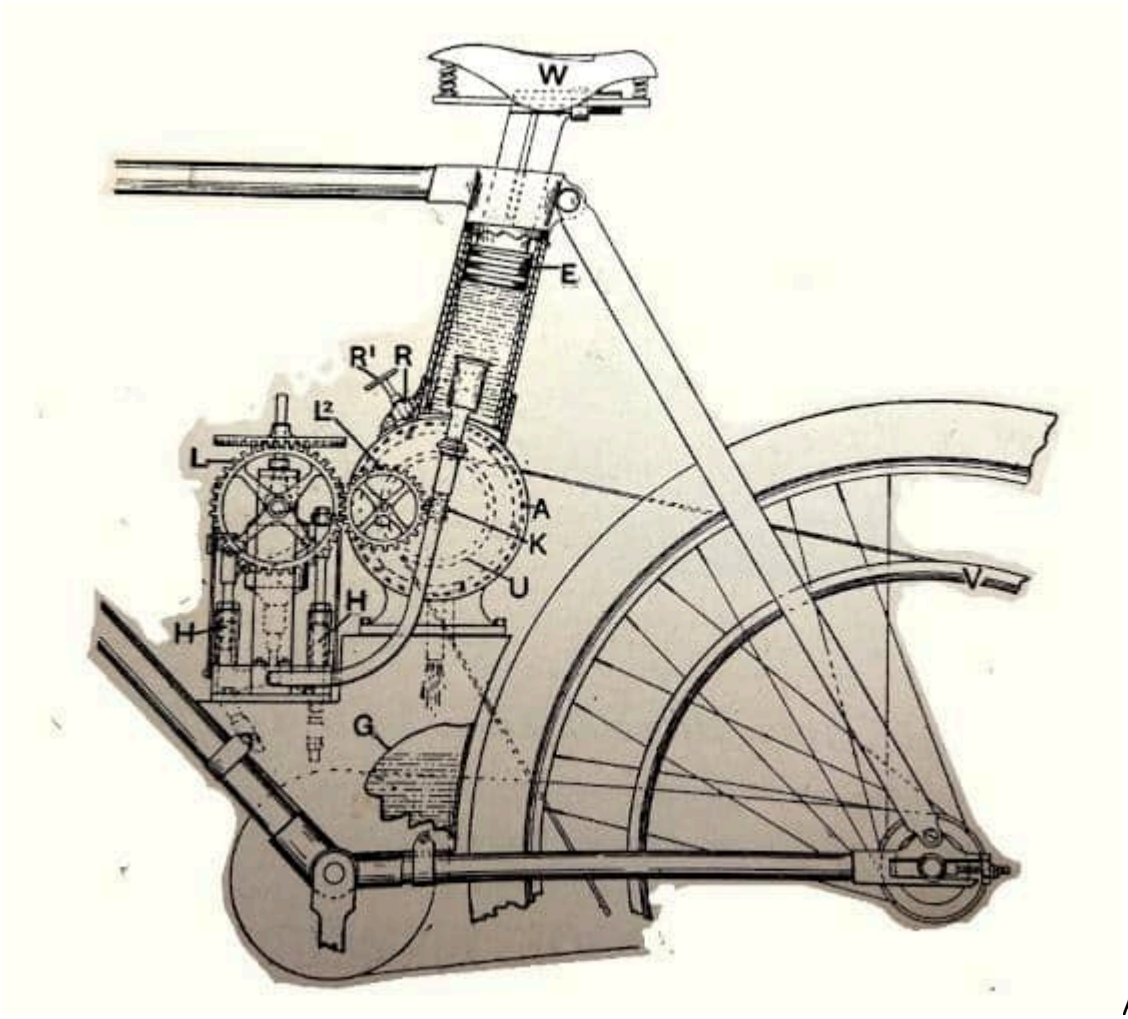


“AMONG THE INVENTIONS which have been published recently, one of the most interesting is Mr C T Crowden’s Ring Rail Motor Bicycle. Constructed with two motors it has a common □ðywheel arranged between them. This □ðywheel 3 and the small spoked wheel 22 form, in a sense, the back and front wheels of the bicycle, as the rims and tyres 5, 6, 23, and 10, really serve as ring rails for these small wheels to run on. The wheel 3 is formed with a groove which engages a rib 4 on the interior of the back rim 5. The frame 2 of the machine is □ðxed to the motors, so that the weight of the frame and rider rests upon the wheel 3, and causes it to grip the rim 5 with suīicient friction for driving purposes. Guides 13 are □ðxed to the frame-work of the machine, and carry rollers 17. These rollers are forced into contact with the interiors of the rims by springs 15. Hence when the machine is ridden over an obstacle the front springs give way and the small wheels begin to climb up in the rims; and as the obstacle is passed the springs gradually return the parts to their normal positions, and in this manner vibration is considerably reduced. The pedal gear acts upon the friction wheel 3, and means may be provided for lifting this wheel out of contact with the rim to facilitate starting. In another form Mr Crowden dispenses with pedals, the construction being more on the lines of the old Wolfmuller; indeed, he has converted a Wolfmuller to his new system, and the results are very promising.”



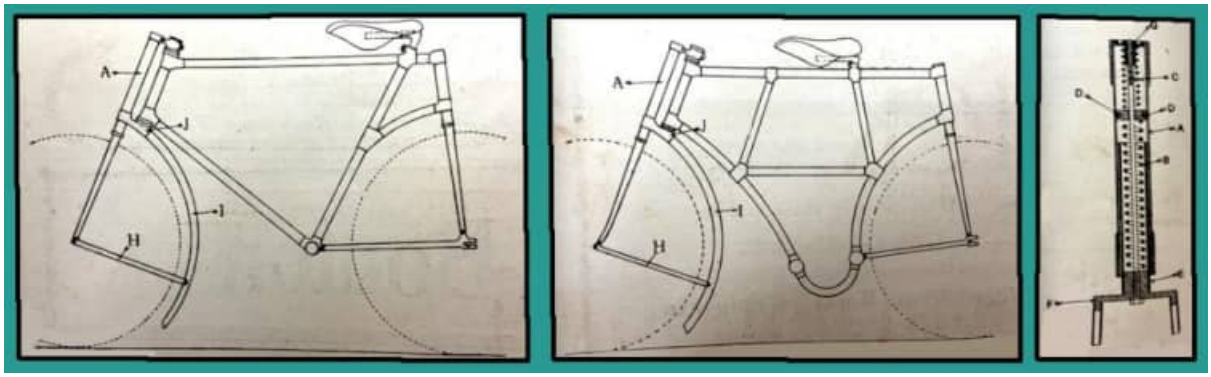
This patent drawing of the Crowden ring-railer makes an interesting comparuison with the converted Hildebrand & Wolfmuller (above).

“THE POSSIBILITYOFEMPLOYINGtheturbine system for automobile propulsion has been more than once discussed. Mr G Plaskitt evidently believes in it, and has had the courageof his opinion to the extent of applying for a patent. Theram E is preferably operated by the weight of the rider, the saddle W being mounted on the rod of the ram, and such ram forces the liquid on to the paddles or vanes A1 of the □ðuid-drivenwheelA, so driving such wheel around, the wheel in turn rotating the driving wheel of the velocipede through the medium of the pulleys U and V, and a belt, or their equivalent. Theliquid, when it leaves the wheel A, passes into the tank G, and is pumped thence back to the ram cylinder, being thus continually circulated and used. In cases where the ram is not operated by the weight of the rider or operator, it may be forced down by means of a spring or by other suitable means. Thepumps H H are placed at the front of the □ðuid-drivenwheelA,and an intermediate gear wheel is employed to connect the pump wheel L with the-wheel K on the water wheel axle. A valve R is employed for regulating the quantity of liquid forced by the ram on to the water wheel, and such valve may be operated In a handle Rl or by a suitable connection running to the handle-bar or to a point within easy reach of the rider.”



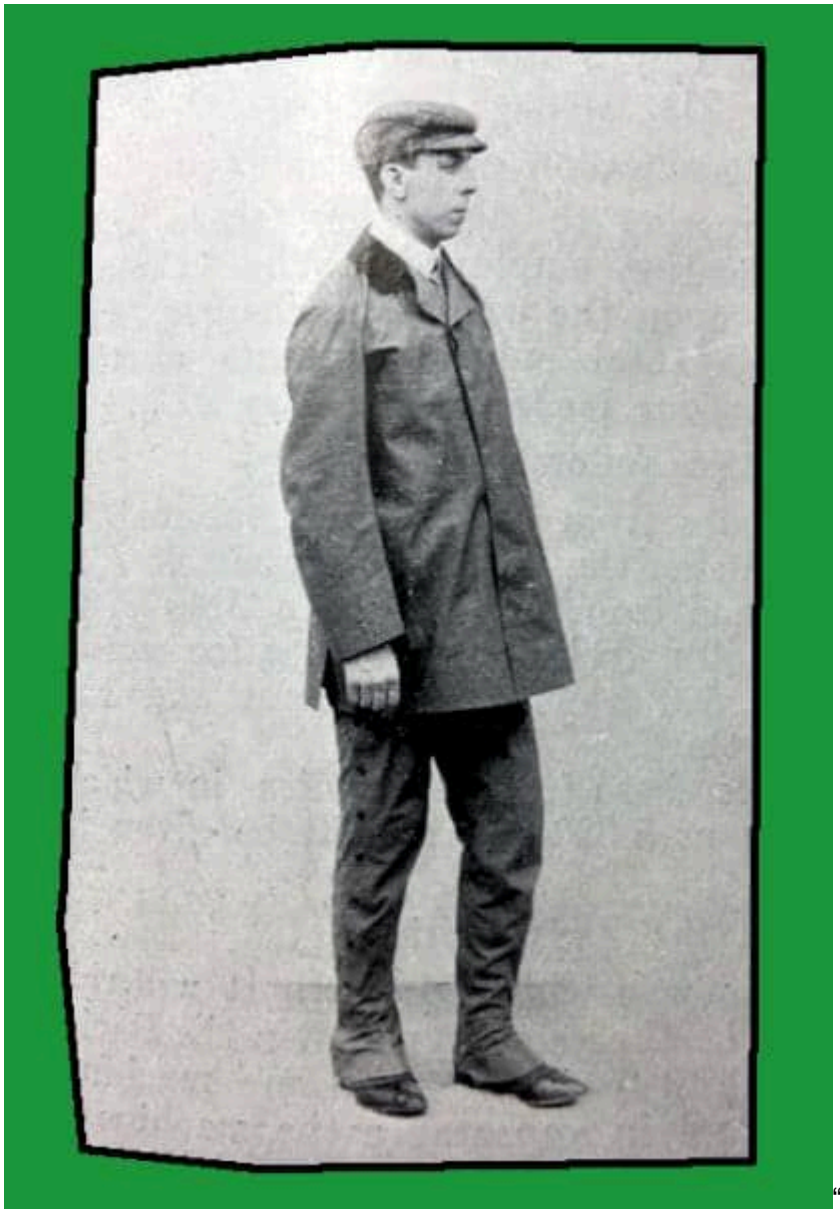
A turbine bike sounds pretty cool but Mr Plaskitt's proposed power source was the rider's bottom.

"AMONG THE PATENTS OF special interest to motor cyclists is one recently brought out by Mr Thomas Ashburn (of 14, Chad Street, Newtown, Leeds), who introduces spring buïers in a second or strengthening head, as well as in the rear part of the frame. As will be seen from □ðgs 1, 2, and 3, the inventor proposes to □ðxinfrontof the steering head or stem a short length of tubing A (□ðgs1and2),giving the bicycle somewhat the appearance of having a second steering head. In this latter, he places two springs B and C (□ðg3),actingincontrary directions to each other against a stop or buïer plate D, which is □ðxedinsidethis(soto speak) second head, about three-quarters of the way up. It will also be seen that the lower spring B is contained in and rests on the lower extremity of a tube E, which rises from and is aïixed to the fork crown, which tube is allowed to work up or down in the secondary tube or strengthening stem with a piston or telescopic action. Theupper spring C, resting with its lower part on the buïer plate or stop D, supports on its upper extremity a disc of piston G, which is allowed to slide freely up and down in what may be termed the upper division of the front stem or head, and so acts as a buïer spring to take up the recoil from the lower or main spring. To provide for staying the lower ends of the two fork tubes H H, these latter are attached by hinged stays to the lower end of a member or support I made of two lengths of D tubing, the upper end of which is aïixed to a lug Jon the lower end of the steering pillar. We must also mention that by means of sheet iron □ðxed between the D tubing an eïicient mudguard is also provided. With a slight modi□ðcationin attaching the back fork stays, it will be seen that the same arrangement can be adapted to the rear wheel.



L-R:“Fig 1: Elevation of frame for inclined type engine. Fig 2: Elevation of frame for vertical type engine. Fig 3: Sectional elevation of the anti-vibrator.”

“WE HEREILLUSTRATEaverywell-made and serviceable motor cycling out□ðtforwet weather which we have lately had an opportunity of examining. Theupper part consists of a short kind of covert coat made of light but strong mackintosh, havinga high collar which can be closed tightly round the throat, also a very useful idea in the way of two vertical slits on each side, by which means tools, etc, can be taken from the pockets of the inner jacket without entailing the unbuttoning of the front. Thelower ‘weather defences’, which are also made of mackintosh, but of lighter material than the coat, recall somewhat the old-fashioned gaiter leggingsand overalls so dear to our sporting grandfathers, and are obviously none the worse for following the lines of such old and well-tried types of ‘bad weather’ garments. We were at the same time shown a very useful ‘□ðneweather’suitfor motor cycling. This consisted of a well-cut Norfolk jacket lined internally over the back and chest with soft leather, and made of strong tweed. The knickerbockers provided with the suit are double lined, with an excellent and novel arrangement for excluding draught at the knees. To complete the costume, curved ‘puttie’ gaiters of cloth are provided, rising from the ankle to the knee. The makers of both the above are the well-known □ðrmoftailors, Messrs Holding & Son, 7, Maddox Street, London, W.”

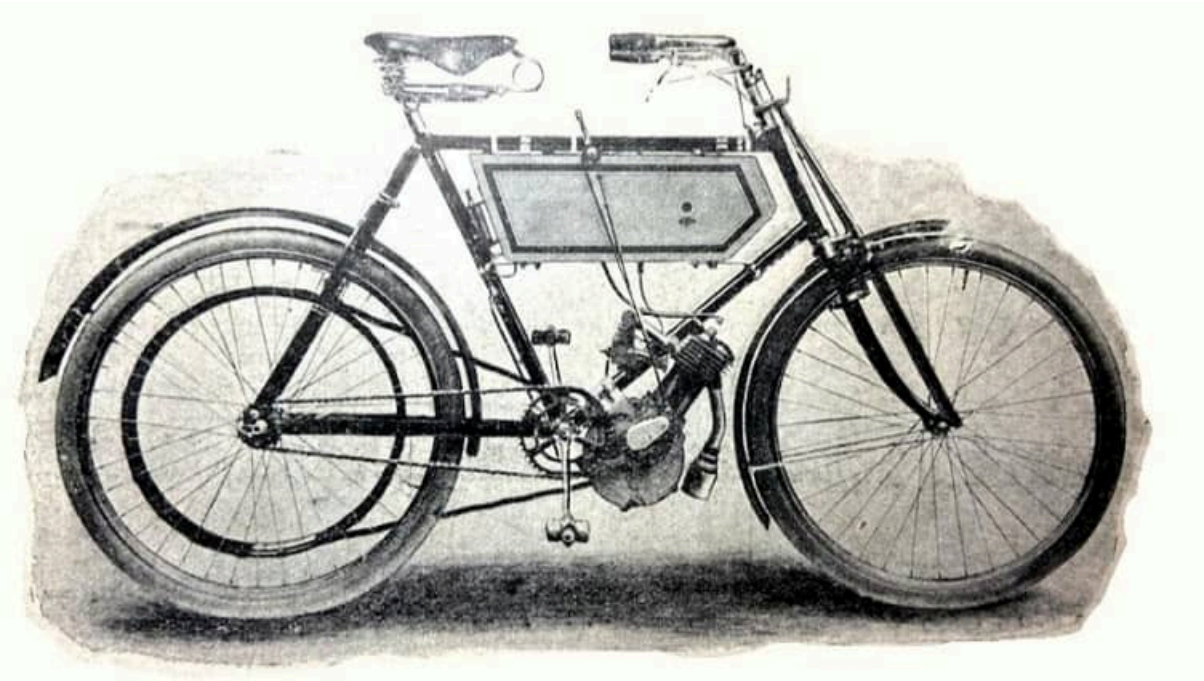


“A motor cycle out□ðtforbad weather.”

“THE“POWERFUL” MOTOR-BICYCLEismade by HW Clarke and Co, Gosford Street, Coventry. It possessesmany good features, which should place it in the front rank of motor-cycles for the coming season. A special point about it is the excellent ‘Buchet’ motor made by the celebrated Paris □ðrmwhich is □ðtted.This is of 2¼hp, has an outside □ðy-wheeland is □ðxedalongthe down tube. Thecarburetter is a spray with □ðoatfeed.Theframeis thoroughly well equipped with brakes, and the □ðnishthroughoutis of a high order.”

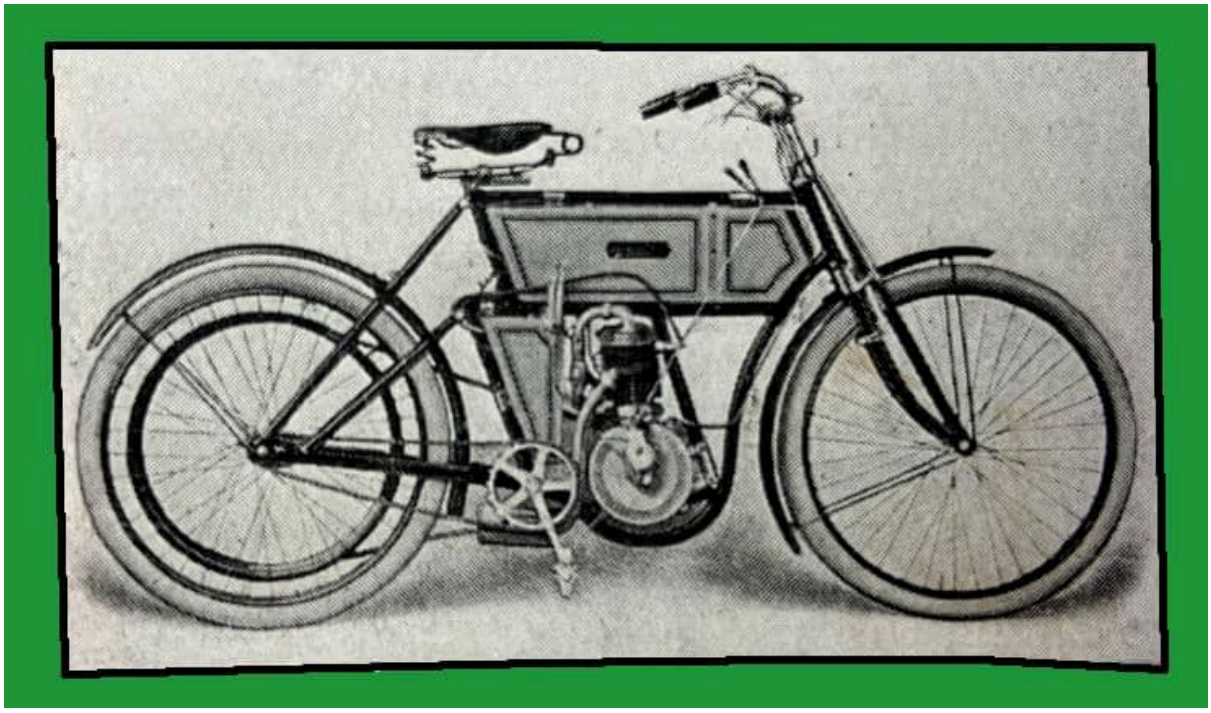
“The RoyalGeorgeMotor-bicycle is a speciality of Messrs Bransom, Kent and Co, Goswell Road, London. It is designed on the standard Minerva lines, and is □ðttedwiththe 1903 2hp motor with mechanically operated inlet valve. Thecarburetter is of the spray type and the drive is by means of a belt. Theframe is built up with an extra long wheel-base; specially strengthened head and duplex forks are provided. Thewheels are made with Westwood rims and special BKmotorcycle hubs. Two brakes are provided, viz, a BKfront rim and a Bowden back. The saddle is a motorcycle type with large springs. Themudguards are made extra wide and have adjustable

links, to allow of the wheels being adjusted, and mudguards to follow the curve. Well □ðnished throughout, the machine conies out at £45."



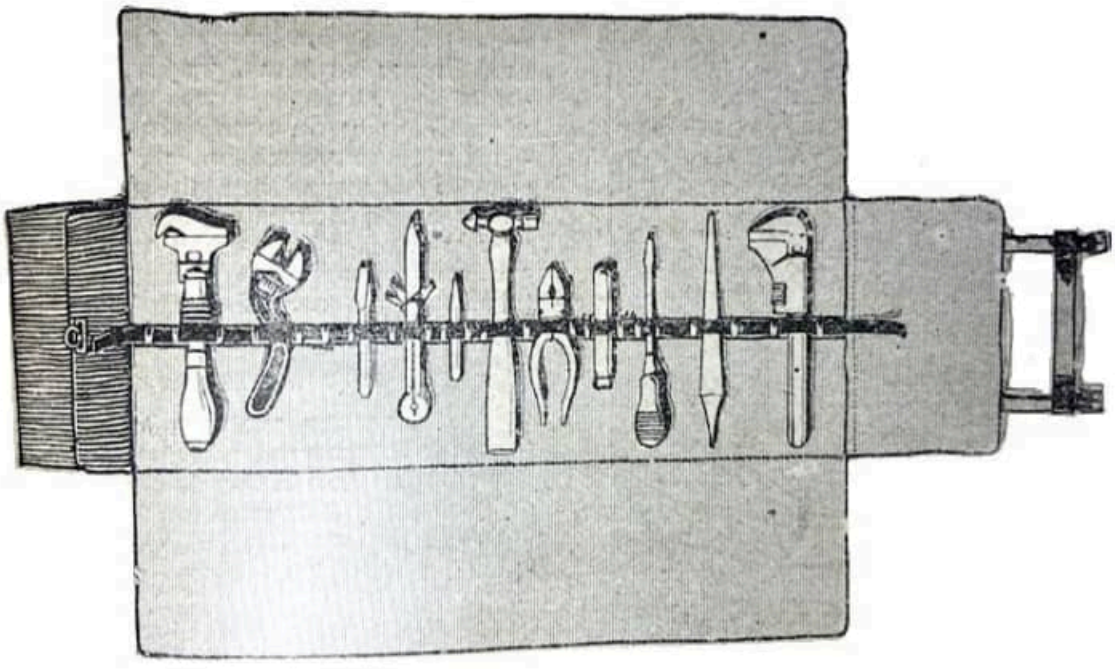
The Royal George was built on 'standard Minerva' lines.

"ANOTHER NEW MOTOR CYCLE is the Austen, made by the Austen Cycle Co, of Lewisham, London, SE. As the illustration shows, the design of the machine departs somewhat from the ordinary. A strong stayed loop frame, of the □ðrm'sown design, is used; the engine, a 2¼hp Kelecom, being placed vertically and securely braced both to the additional stay and the lower portion of the loop. A long belt drive is thus secured. Duplex front and rear forks are □ðtted, and with Clincher A1 tyres and Westwood rims the machine comes out at £40. The □ðrm are also prepared to □ðt their own form of combined chain and belt drive, in which power is transmitted by a chain from the engine to an intermediate pulley □ðtted to the diagonal, and thence transferred by means of a □ðat belt drive to the pulley wheel."



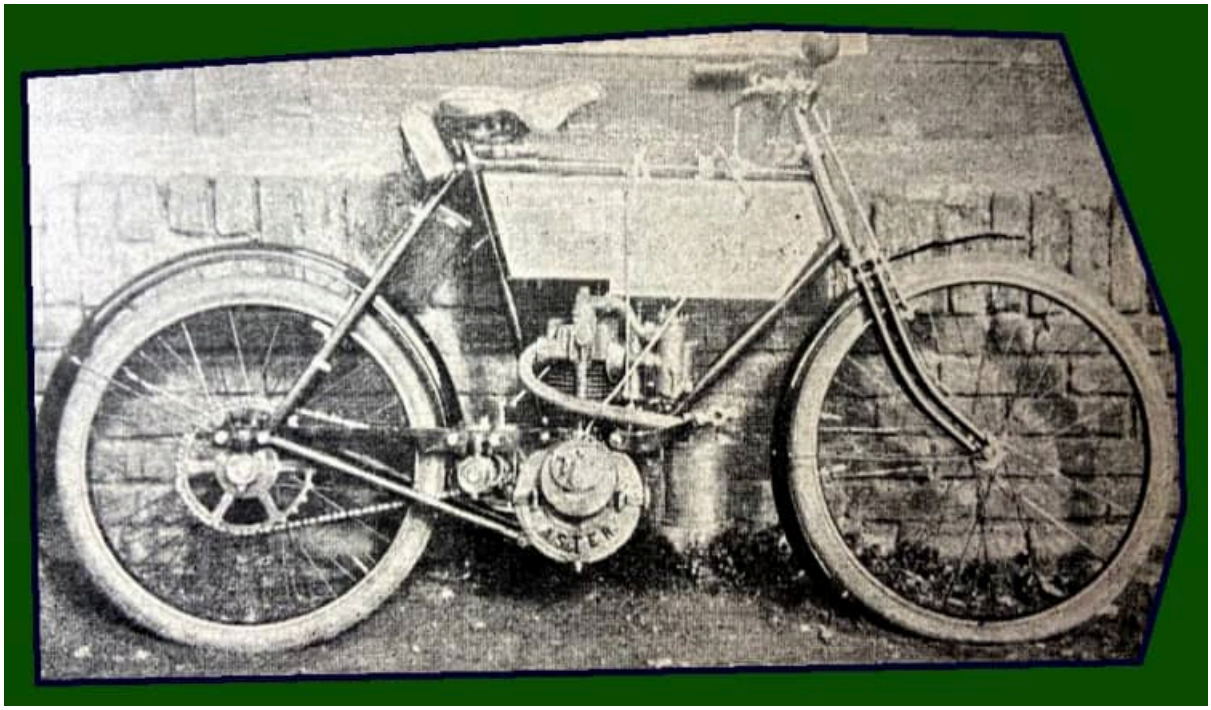
The Austen put Lewisham on the motor cyc;ing map.

“THE STIRLING MOTOR KIT. Carried in a leather wallet provided with a □ðexible rack, is a very useful and complete set of tools. The side wings of the wallet wrap over and a pocket is provided at one end for loose sundries. The whole rolls up into a small compass, and is secured by a pair of straps. The tools are well assorted, and in quality they are of the very best. Each tool has been selected for the work required of it, and thus the set is reliable and useful. It is sold by the South British Trading Company, of Victoria Avenue, Bishopsgate Street Without, London, EC.”



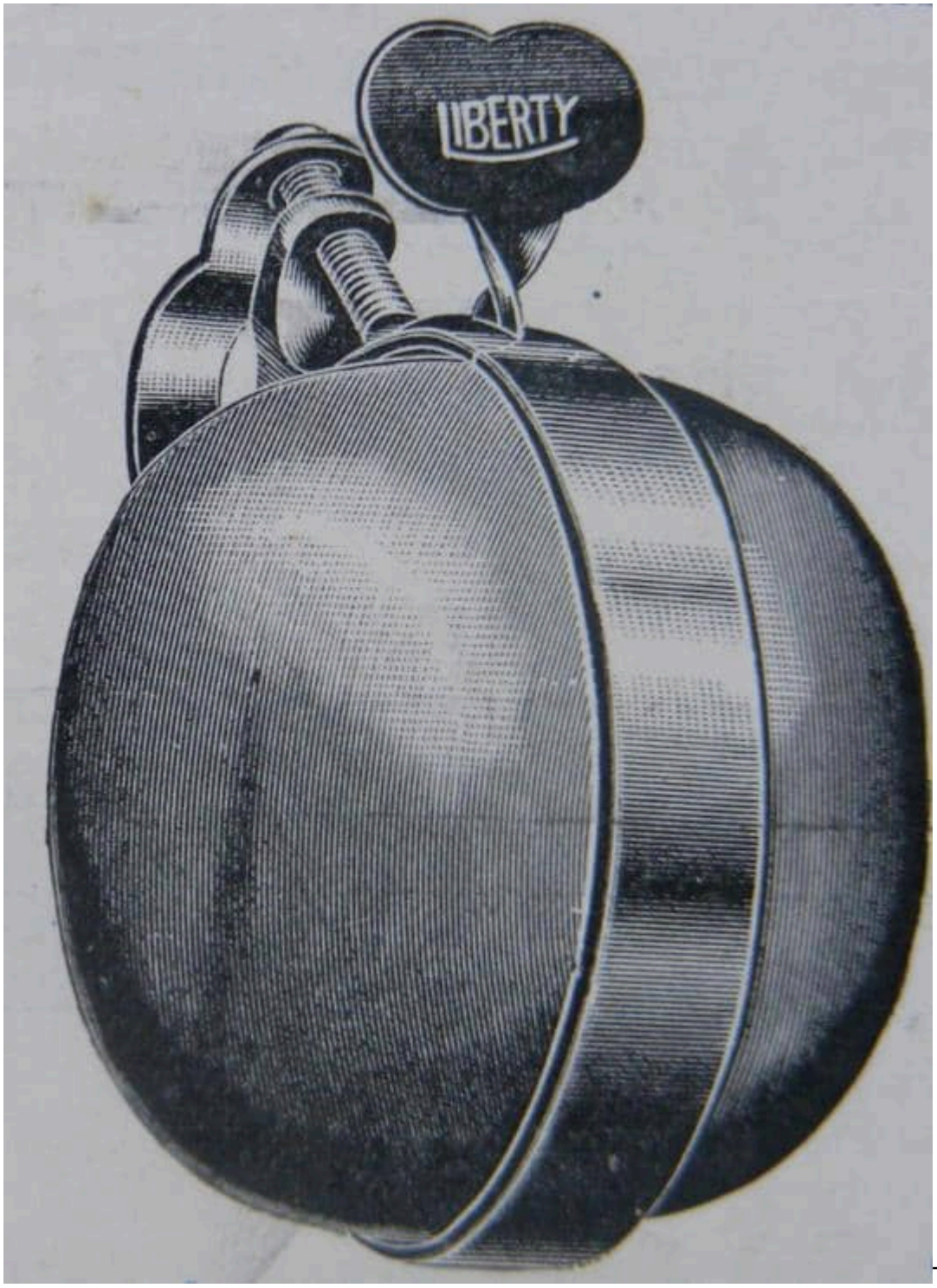
“The Stirling Motor Kit, South British Trading Co.”

“SIR,—I ENCLOSEAPHOTOGRAPHofmy motor-bicycle, and hope you will have the goodness to illustrate it. In 1901 I went up to the Stanley and Crystal Palace Shows, spending one day in each show, with the idea of buying a motor-bicycle. Previous to visiting the shows I had □ðxed ideas of what I wanted, and although I saw many smart and handsome machines, I did not see exactly my idea. This machine was made for me by Mr. Taylor, Red□ðeldRoad,StGeorge,Bristol, and I must say it re□ðectsthegreatest credit upon his good workmanship and ingenuity. Brie□ðy, the description of the machine is as follows: Aster engine, Aster coil, Longuemare carburetter, P&Raccumulator, EJCsparking-plug, and a special arrangement consisting of two-speed gear, also giving free engine and free wheel, all operated from the seat by one lever. This arrangement was made for me by Mr Taylor. This two-speed gear, etc, is invaluable. I can free-wheel down all hills, and on low gear can mount absolutely any hill. In fact, I have never seen a hill which I have not been able to ride up, and I have the satisfaction of knowing the machine does the work, as I have footrests only. A few days since I had occasion to go up a hill in Bristol known as Nine Tree Hill, which is short, but excessively steep, and altogether impossible for any sort of horse-drawn traïic, and as far as my memory serves me, I think this hill is really steeper, although not so long as the Gas House Hill, Norwich. My top gear is fast enough to be pleasant on a road, and enables me to hustle along at anything up to 40 on a decent .surface; at the same time, I am able to take all ordinary hills, such as Park Street, Bristol, on top gear. For really fast work I have a special gear wheel, which can be attached in a few minutes. I □ðndthefreeengine most convenient, as I can try it, or start it with a handle in a similar way to a car. I have Clincher 2in tyres, with a Bates band on the back wheel. My saddle is Brampton’s Multispiral, to which I have added a seat spring, which absolutely absorbs all vibration. This spring diïers from everything else I have seen; it was made for me by Mr Taylor. The machine runs remarkably steady at any speed, and the position of seat and footrests are both comfortable and secure. My twelve months’ experience of the Longuemare carburetter proves it to be one of the best, and, in my estimation, is the best under all conditions. The Aster engine is really magni□ðcent,andwithit I am a stranger to contact and valve troubles, of which 1 read so much. I took a fancy to the Aster engine at the Show of 1901; in fact, the engine on my machine is the same one. If any of your readers wish any further particulars of my machine I shall be most happy to explain. I may add that previous to having this machine made I rode two motor-bicycles of diïerent makes, and, although nice machines, they did not ful□ðl myideasand requirements.
Thos Roberts, Bristol.”



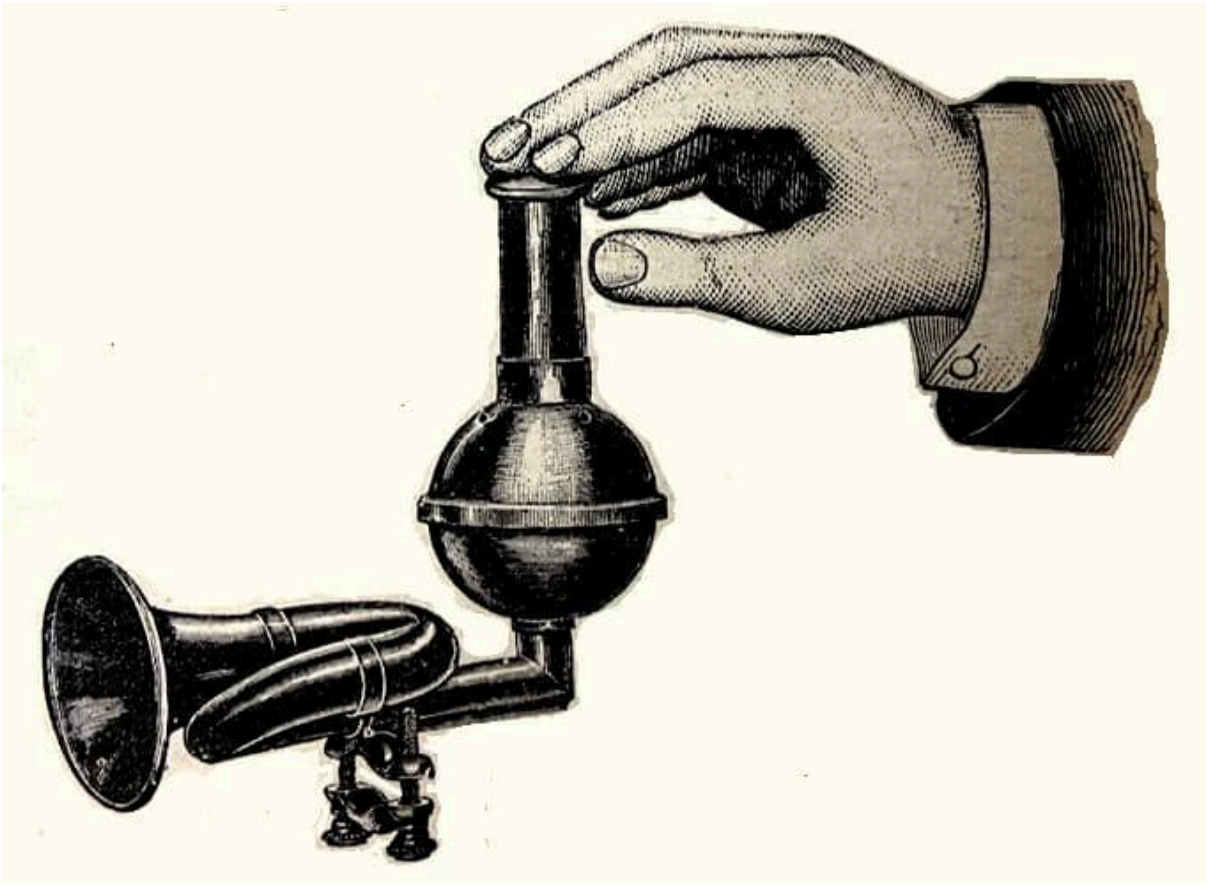
“Motor-Bicycle referred to in letter from TRoberts, Bristol.”

THISIS ONEof the the □ðrst‘newproducts’ stories to be published in TheMotor Cycle: “A good, resonant, sweet-sounding bell is certainly a far preferable method of givingwarning of approach than the somewhat raucous, nerve-distracting horn; and we are pleased to notice that Messrs Markt and Co, of 21, Chapel Street, EC,have been quick to notice the necessity by marketing a special bell for motor cyclists’ use. It clips to the handle-bar in the ordinary way, but is made just about double the usual bell size. Thedomes are made to revolve so that a very sweet □ðowing sound is produced, which can be graduated from a single stroke to a continuous volume of sound suīicient to penetrate the ear of eventhe deafest pedestrian or driver. We have had one of these bells in use on our motor cycle for some weeks past now, and it has certainly given everysatisfaction, whilst at the same time gainingthe encomiums of our pedestrian friends, who are rabid haters of the motor horn.”



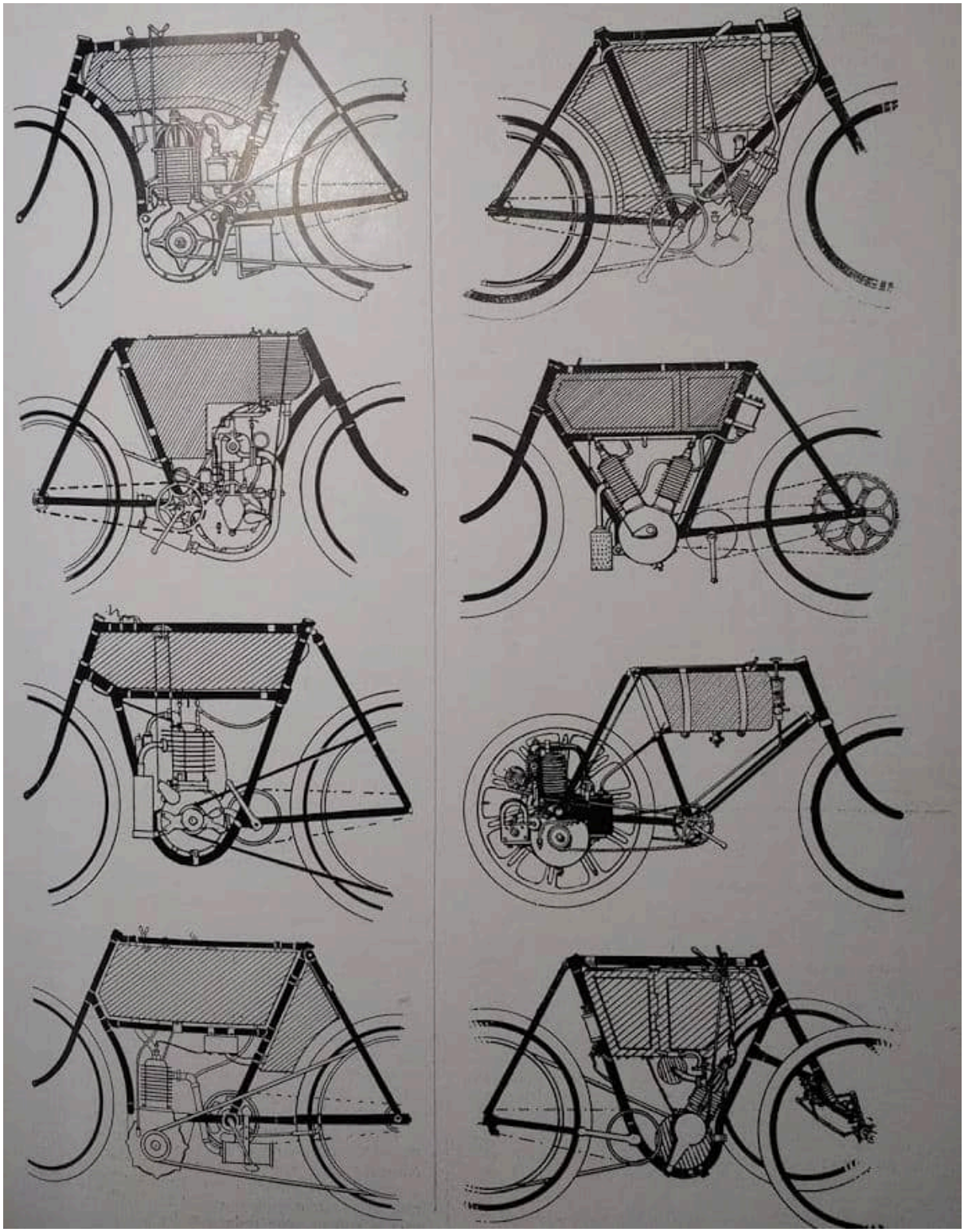
The Liberty bell: meli□ðuousenoughtoearn plenty of encomiums

…ANDHERE'SONEOFTHElast 'new products' published by Motor Cycling before it morphed into Motor (incorporating Motor Cycling and Motoring): "This is a special type of horn, designed to supersedethe present type with the rubber bulb. In the pattern illustrated the bulb is encased in a jointed metal ball, the upper portion being provided with a plunger moving in a socket so that when in□ðuencedbythepressure of the hand the bulb is compressed and an instantaneous signal given. A series of either long or short signals can be given. It can be attached to existing horns by metal □ðexibletubing—thelargepat-tern for cars is 15s., and small size for cycles 8s. 6d. The makers are Cutmore's Patents, Queen Victoria St, London, EC."

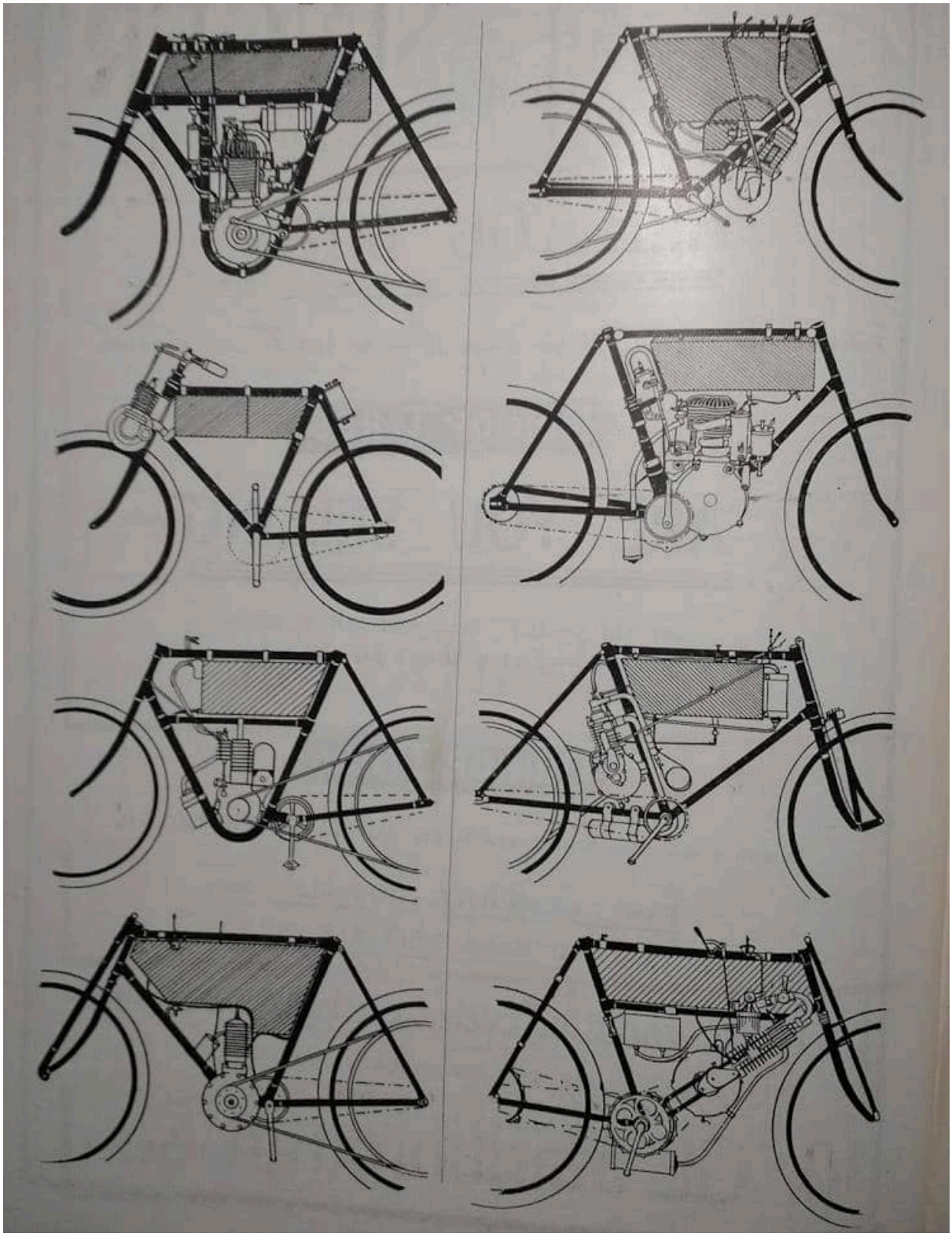


Note that this horn was available to suit cars and motor cycles.

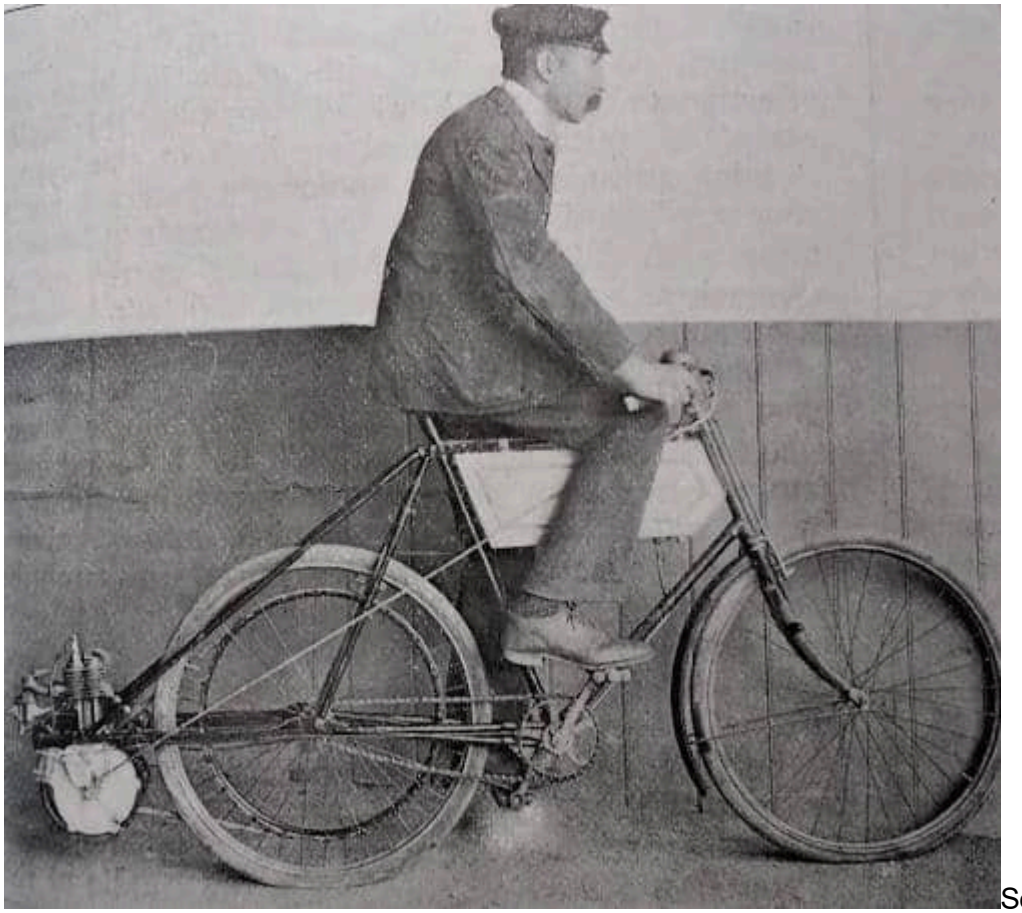
“THOUGH BICYCLEENGINESarebeing built larger every month we still □ðndthatthe demand for more power continues. Thiswill probably cease at the 3hp limit for the present, and it may fall back in future years, provided only that an engine and its gear are so arranged as always to give its rated power. For example, the 3hp Humber, which made the best performance, viz., 21mph on the ‘Trial’ Hill [at the Crystal Palace Trials] only developed 1.59hp, according to the apparently fair calculations of the Automotor Journal.”



A selection of 1903 models…



…andmore of the same. A growing proportion had the engine in the ‘right place’.



Some manufacturers still had their own ideas of where to □ðtthemotivepower. TheSouth Hants Motor Co of TheFloating BridgeWorks, Portsmouth produced a Humber bicycle with a 2½hpMinerva enginemounted begindthe rear wheel. Themakers claimed that "all vibration is taken from the rider, and that actual vibration from the motor assists in the propulsion in the machine". The Blue'Un commented: "We must admit at the mioment we cannot see how this is eīected."

"A MOTORCARSTOLEN.Forthe □ðrsttimein the history of motoring we have to record the theft of a motorcar. Thecar is the property of Mr H Arland Hood, and the theft was an audacious one. Themotorcar was taken from the coach-house by an Englishman and a short Frenchman, the Englishman having been introduced to the caretaker as being the new driver by a late driver in the employ of Mr Hood. Thecar had been put away for the winter. Thecar has since been recovered, and the man captured."

"AN INVENTOROFTHEnameof Herz, said to have been formerly connected with the Daimler Co, has produced a muīler or silencer which converts the lost heat from a petrol motor into electricity. Out of everyhundred heat units generatedin the motor only 18 are transformed into power, 17 escape with the exhaust, and 65 are carried away by the cooling water. Theinventor utilises the 17 heat units lost through the exhaust. Theapparatus he uses generatesan electric current strong enough to light a head light, or it can be stored in accumulators for igniting the charge in cylinder."

"THE LORDMAYOROFSYDNEYrecentlystated that, since the experiments in connection with the layingof dust with oil in that city had proved successful, it was desirable that the municipal council should proceed further with the work. It was pointed out that by purchasingthe oil in bulk a large savingcould be eīected."

“A MOVEMENTISONFOOTto form a motorcycle club for Brighton and district. A meeting of riders interested is to be held on Thursdaynext, February 19th, at 72 Marlborough Place, Brighton, commencing at 9pm, when a good attendance is hoped for.” [PS: TheACU reported, on 17 March 2022: “The Oīicers of the Brighton and District Motorcycle Club met on the 17th February 2022 to discuss the future of the club. ThePresident proposed that as the club was no longer aīiliated to the ACUand had not run any events for overseven years that the club bank account should be closed and any residue of funds donated to TheMartlets Hospice and SussexAir Ambulance. He said: ‘As President I would like to thank everyone who over the past 90 years contributed to making Brighton &DMCC a name to remember in all disciplines of motorcycle sport and activities. We promoted events at all levels, from closed to clubs through to British Championship rounds in everything except Road Racing. We even went to International level with the Clubman SidecarTrials. We are not sad at the closing of the club, it has run its course, and we all have a lifetime of happy memories to look back on.'” Theclub had a roadriding section too; I had some wonderful times at Brighton &DMCC Devils Weald rallies. Happy memories indeed—Ed.]

“LIVE TOCARDIFFFROMLONDONin a day. I made the above run on my Birch 2hp motor bicycle, □ðttedwithmagnetoignition. Starting from North London at about 7 o’ark Corner, Hounslow, ultimately arriving at Maidenhead, although this was after I had made several stops to discover a certain loss of power which I had noticed from the start. At this latter place then I had my exhaust valve ground in, and with the very gratifying result that I found the machine was now about 10mph faster than before. Starting again at about 11, I soon arrived at Reading. Just beyond this town I overtook, and was in turn overtaken by, what appeared to be a 9hp Renault car. I endeavouredto at least keep up with it, but as it could go just about 3 to 5mph faster than I could, it gradually crept away and left me behind. At Marlborough I had to re□ðllmypetroltank, and on enquiring the price from the shop attendant, was informed that I should haveto pay 2s per gallon, and even at that price they did not care whether they sold it or not. However, after □ðllingup, seeingapparently that I was only the owner of a humble motorcycle and not a car, he relented and charged me 1s per gallon only. When between Caine and Bath my Lincona belt began to slip, so that it had to be shortened. Continuing on I reached Bath about three, and, on arriving at Bristol, purchased another half-gallon of spirit, in case I should had any diīiculty in obtaining it in South Wales later in the evening. Here also I took some refreshments. From Bristol I made for Patchway, to cross the Channel by the Severn Tunnel. At this village I gavemy machine a generallook over and made an adjustment or two. At the station the booking-clerk did not know what to charge for the carriage of the machine, and took so long to □ðndoutthatI almost lost the train. After a three-quarters-of-an-hour’s ride, or thereabout, the train arrived at Severn Tunnel Junction, where I got out and started oī for Newport. Thenext ten or twelve miles’ ride was certainly exciting, and one I shall not forget for some time. Thenight was unusually dark—the light of the moon and stars being absent. Theroad was very narrow and tortuous, and, perhaps worst of all, alternate patches of greasyand dry road were come upon in turn. Arriving at Newport, about nine, I □ðlledupthewell of the oil lamp—this is kept in reserve in case the acetylene one should give trouble. Exceptfor the slipping of my, belt on a particularly stiī hill, I had an enjoyable ride on to Cardiī, which I reached about an hour after leavingNewport. Originally, I had intended to make Swanseamy destination for the night, but as it was then late (something after ten), and the latter place 47 miles further on, I had to remain satis□ðedwitha ride which was, according to my cyclometer, one of about 166 miles.
WH Shutes.”

"YARNSAREBESTSPUNwhenthe spinner is telling his own experiences. I have to fall back on others, however, for my own motor-bicycling career has so far sparked very evenly. This story was told me by a dare-devil, all-weather rider, who has actually covered over 20,000 miles on the chain-driven Humber. Indeed, it depends largely for its incident on the fact that both the machines and the riders were in the experimental stage. It has to be confessed that it was on a Sundaymorning that my friend and another left Halifax for a pleasant little run of the 'back-to-tea' order. So merrily did their motors mote, however, that they soon found themselves over the Penninesand in Oldham, which is a vastly picturesque town in Lancashire. Fired with new fervour and an infusion of 'Souchong' provided by friends, they said, 'Let us adventure as far as Liverpool.' Having passed through Manchester and reached Altrincham, one's battery petered out, and the other towed him into Liverpool, where—beingmen of easycircumstances—they put up at the Compton Hotel. Thebattery taken to be charged in the morning and promised for noon, they visited the briny breezesof New Brighton, and returned only to be told that the accumulator had been found to be broken. So they bought a second-hand one for a guinea, and while it was charging, No 1 set oī for an afternoon run to Ormskirk. Themotor began to run like a boat-horse, however, and he found himself without lubricating oil. Thebest that Ormskirk could do was salad oil. With the cheerful optimism of the novice he poured salad oil plentifully into his crank-case and, to the accompaniment of a fearful stench and a poisonous smoke, set oī back to Liverpool. Owing to a leakagein his high tension wire through

A dare-devil, all-weather rider." "A fearful stench and a poisonous smoke." "The other towed him."

friction with the frame, he periodically became the conductor of the whole force of the coil. For insulating purposes he asked a passing tramp for string. Weary Willy had none. 'I will give you threepence for your boot-laces,' said our dauntless chauīeur. The delighted wanderer speedily divested himself of the laces, but the protection they aīorded from the insidious current was but partial, and when the galvanised cyclist eventually rejoined his wondering friend in Liverpool, his description of the ride was coloured with electric blue. The second night of the 'home-to-tea' run was thus also spent at the Compton Hotel. Tuesday morning saw a fair start home, however, though the new accumulator proved too big for the case and had to be tied on behind the saddle with string. Nearing St Helen's, the ill-fated Peto & Radford slipped its moorings, fell on the road, broke, and spilled the contents. A roadside council of war was held. Dismally pooling their money on the grass, their united funds were found to reach elevenpence in copper. The sparkless bicycle was towed by the other into St Helen's. The only likely saviour they could hear of in the town was a doctor who 'had a motorcar'. This gentleman proved to be a Good Samaritan of the □ðrstwater. He gladdened their drooping hearts with distilled barley-water, made a valiant if unsuccessful attempt to mend the broken battery, and □ðnally □ðtted them up with one of his own. About six pm they resumed the journey to Halifax, of which about □ðftyhillymiles remained. The route they were ignorantly taking is one of the worst in England—densely populated and execrably paved. Forthwith a tyre began to go down with diabolical regularity. Many times was it removed before it was found that a block of the back Bowden was touching the valve and opening it quite intelligently. It was the fault of the valve; and the diīiculty was got over by changing the tyre on to the front wheel, where there was no brake. It was getting dark when one motor began to mis□ðrebadly; nor could he fault be seen. As the disconsolate rider stood re□ðectingwithonefoot on the commutator, the machine jumped forward suddenly. The spring had been loose—it was a wire contact—and he had un-wittingly pressed it down. The mystery was solved! Bumping into Wigan, they spent their last penny in a new lamp-wick. But the lamp would not burn, and the oil-well was found empty. In a roadside 'working-men's club' they begged for oil. All the good colliers had was what they called 'pit oil', but the cyclists took it gratefully. Such dense yellow smoke arose from that lamp that they concluded the 'pit' referred to was the bottomless one. At one of the few houses which now showed

"Dismally pooling their money on the grass." "The landlord declined them with thanks." "I will give you threepence for your bootlaces."

lighted windows, they mixed the 'pit oil' with paraīin, and the fumes were something less deadly. They were on a rough, unlighted road, and heavy rain began to fall. Walking back to a public-house, which they reached just before eleven pm, the landlord declined them with them with thanks. He did not like people without money, even though their cycles were worth £50

apiece. He thought they might be able to get put up at the next inn, three or four miles back. A black-faced, clean-hearted collier volunteered to □ðndthemshelter,if not beds. When the two motors were wheeled into the little living-room it was .about full. One man 'dossed' on the couch and the other on the hearth-rug. Six times during the night the pitman descended to warm some milk for his ailing child, and each time he put the friendly query, 'Are ye all reet?' Breakfast was at six am. The goodwife was preparing a succulent dish of eggs and bacon, whose savour was simply god-like to the half-starved chauīeurs, when the □ðreandthefrying-pan and all its contents were suddenly smothered order a heavy fall of soot. Thetravellers wept silent tears. Nothing daunted, the pitman sallied forth and secured more bacon; and the 'back-to-tea' jaunt was resumed—Wednesdaymorning it was—by the two grateful and invigorated adventurers. Nothing much of moment now occurred until Bacup was reached and passed. From here to Todmorden the road rises sharply to a height of 1,300 feet. No 1 □ðewuptothe top—there is nothing like the chain-drive for this sort of country—but he missed his friend and waited on the summit. Presently No 2 came up smiling. At a cottage down below he had asked for a drink of water by way of dinner—it was high noon. The good lady took compassion on his hollow cheeks and hollower stomach, and plied him with hot coīee and a hot North-country delicacy known as 'fatty cake', or 'oven-bottom cake'. But his joy was short-lived. Fasting people should be careful how they eat, and ere long he fell grievously sick. At Luddendenfoot, which is in sight of Halifax, and is locally known as 'Fooit', one engine groaned and gave up the ghost for want of petrol. By way of a respectable entry, they cleaned up the machines and one pedalled and the other puīed triumphantly to their club in Halifax. 'We've just ridden from Liverpool,' they said, lightly. 'Have you come all the way from Liverpool on those things?' 'Oh, yes!' 'We'll, I'll be ——-!'"

"Smothered under a heavy fall of soot."

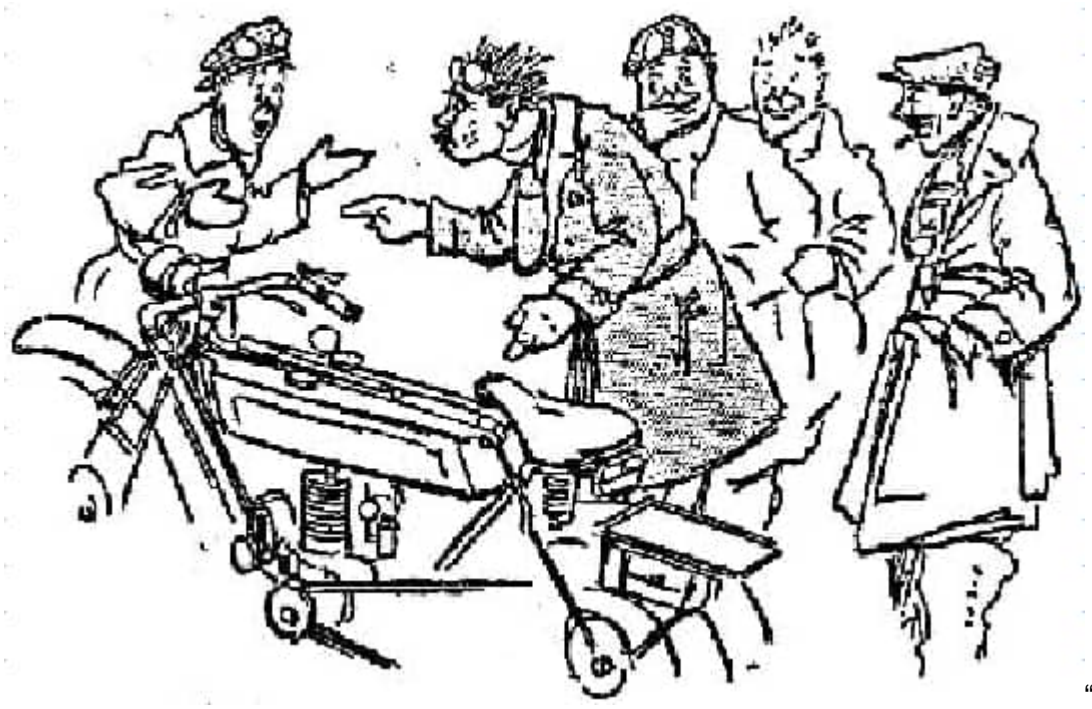
"THE FIRSTAMERICANWOMANtopractically use the motor-bicycle is said to be Mrs FP Kent, of Waltham, Mass. The Thomas Auto-bi, upon which she is mounted, has been used by her for over twelve months. Although her parents own a motorcar, which is always at her disposal, she believes that for real pleasure nothing can compare with the motor-bicycle."

“THE PRINCE OF MONACO is a keen motor-cyclist, and has for some time ridden a French machine. We happened to call at Mr Asbury’s depot in Queen’s Road, Bayswater, the other day, and learned that he had just sold a 2¾hp Beeston Humber motor-bicycle to his Royal Highness: The Prince had taken the standard machine as ful□ðllinghisideasof a practical motor-cycle, and had desired no alteration to be made. It goes to his yacht at Portsmouth, and will □ðrstberidden by the Prince on French roads.”

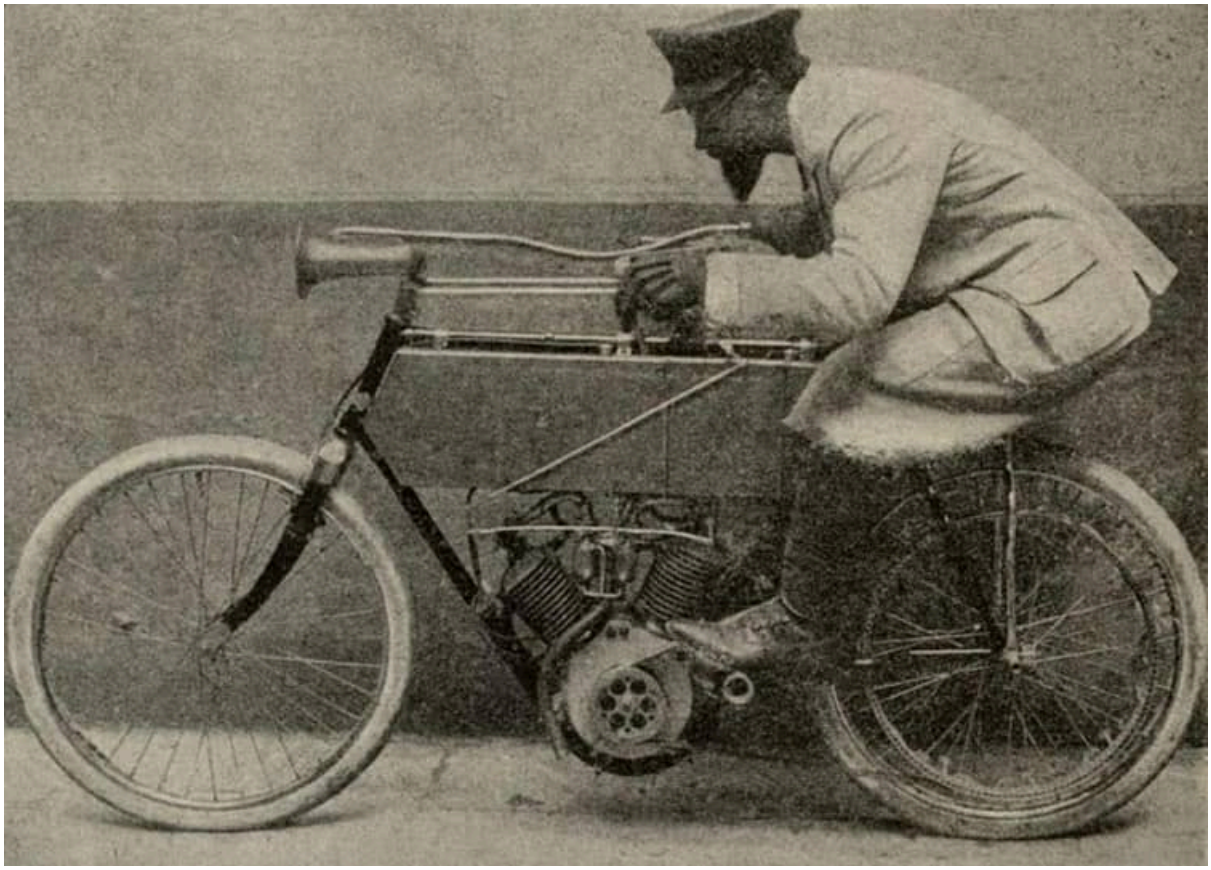
“MAURICE FOURNIER, WHO IS now over in England, tells us that he is open to ride against any motorcyclist in England at any distance from one to □ðftymilesfora sum up to £250 a side, the event to take plan on any outside track to be decided on. Fournier is at present riding a motor bicycle with a Carreau frame, □ðttedwitha 4½hp Soncin motor.”

“TWELVE MONTHS AGO I purchased a Thomas Auto-bi (American machine), and it has given me considerable pleasure. Unfortunately, it is rather expensive to run.- Petrol is 27s 6d. per 8-gallon tin here, and for the □ðrst 7,000 miles I used one gallon of spirit for each 80 miles. ‘Cyclomot’ records a run of 106 miles on 6½ pints, and ‘Magneto’ a run of 80 miles on 4 pints. What would be appreciated by motorists abroad is a clear statement showing what can be done with various machines, giving minimum and maximum speeds, consumption of oil per 100 miles, petrol-carrying capacity, weight, price, hill climbing tests, etc. A statement such as this would be of great value to those like myself who are unable to. attend the exhibitions and see for themselves.
EH Short, Government Railways, Cape Town.”

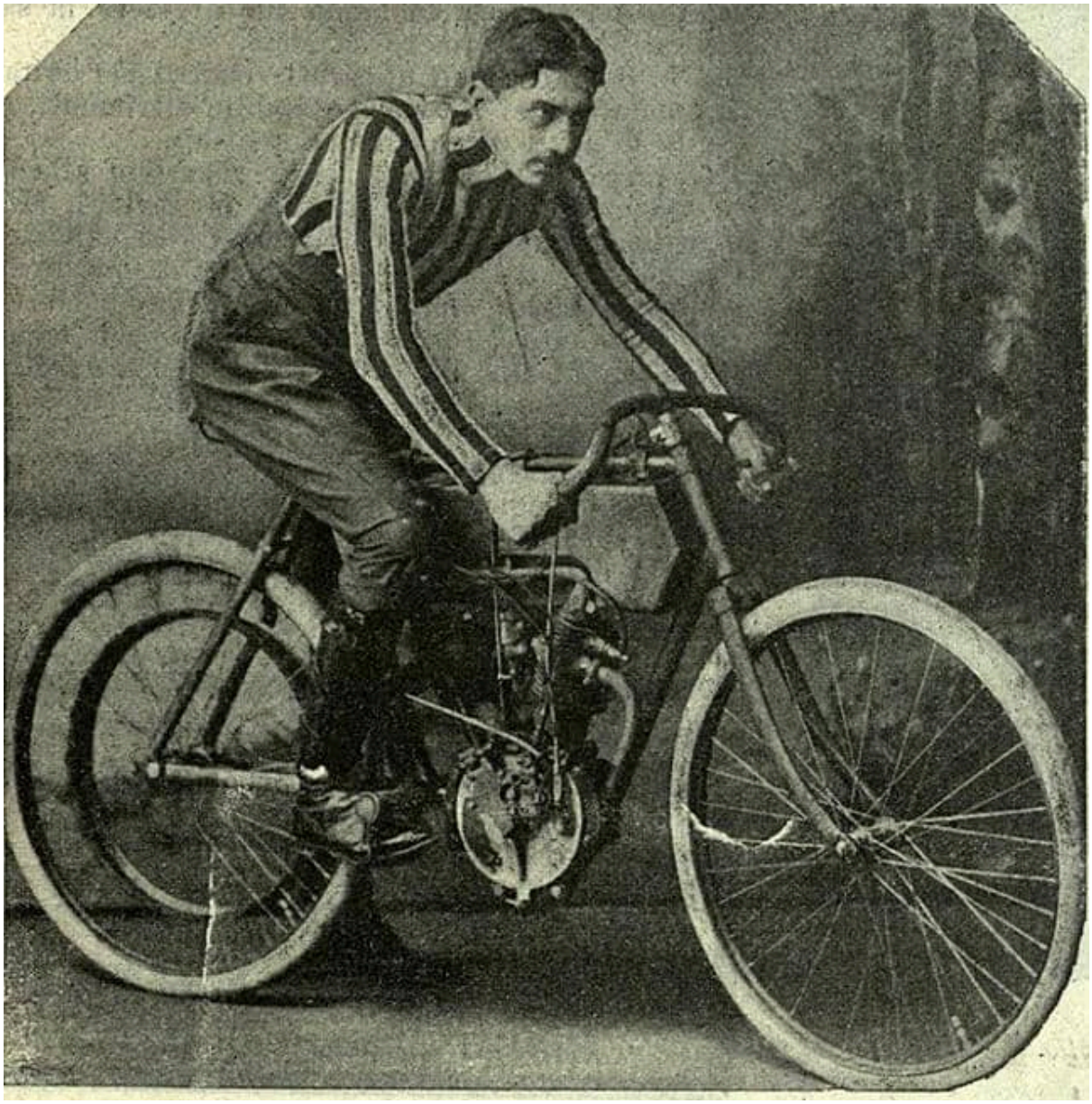
HERE’S A WHIMSICAL reminiscence that oīers an insight into club life: “On tour and in club runs it has always been legitimate to penalise a rider who knows too much and talks too much by putting his machine temporarily out of commission. A fussy and self-important motor cyclist can be amazingly funny when his tank has been secretly □ðlledwithparaīin, or his magneto points separated by a tiny disc of paper, or the plug wires of his twin crossed, or his air wire coupled to his throttle or vice versa. Perhaps the best trick of this sort on record was perpetuated on a dark night when Binks was refreshing himself inside an inn. One of his pals wedged a billet of wood between the back tyre and the mudguard. After lengthy potations Binks came our and attempted to start his single-geared bus. He dosed his apprently seized engine repeatedly with paraīin. We were all very helpful, and with □ðveorsixofus pushing Binks at last got away in clouds of blue smoke and proceeded at about 8mph, sooting a plug every mile or so. He naturally needed further refreshment at the next town, and while he was obtaining it we removed the billet of wood. We have never dared to tell Binks the facts; he still muses over the queer conduct of that engine. I am all against any real mechanical interference with a pal’s machine. But in the case of a frightful bounder who needs a real lesson it may occasionally be permissible to retime his magneto. This should not be overdone, substituting full retard for full advance being far better than transferring the spark to the exhaust stroke, or to solder up the passage connecting the □ðoatchambertothe jet chamber. In one priceless case of this sort an unspeakable person was despatched to Scotland for a whole week by his □ðrm, andforhis soul’s good, his riding associates took his engine entirely to pieces and substituted a new connecting rod considerably shorter than the original part. The resultant engine symptoms baīled several experts, who were not in the know, for quite a time.”



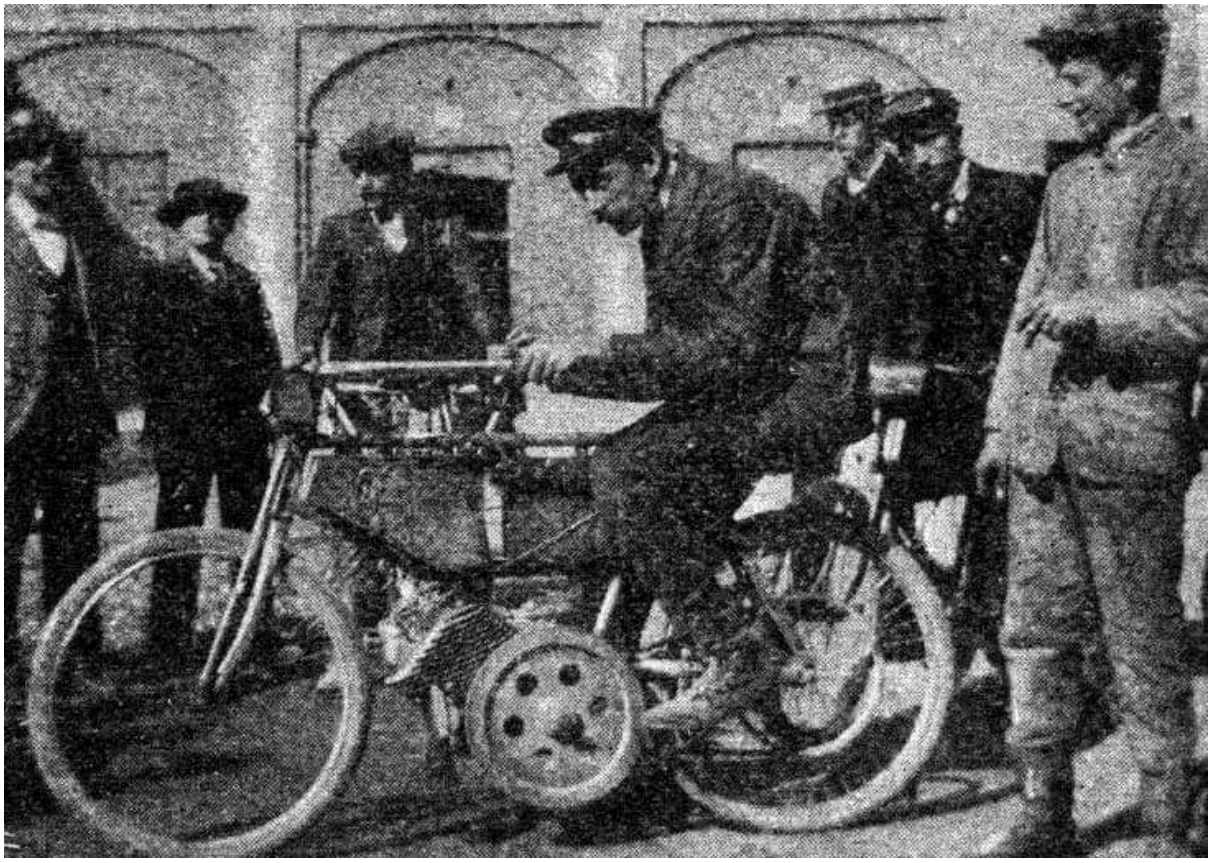
"A fussy and self-important motor cyclist can be amazingly funny…"



From the original caption this rider is one Baratelli; he's just won the 3½hp 'heavy class' in an un-named speed trial. He clearly great taste in chest actuated bulb horns, streamlined beards and caps.



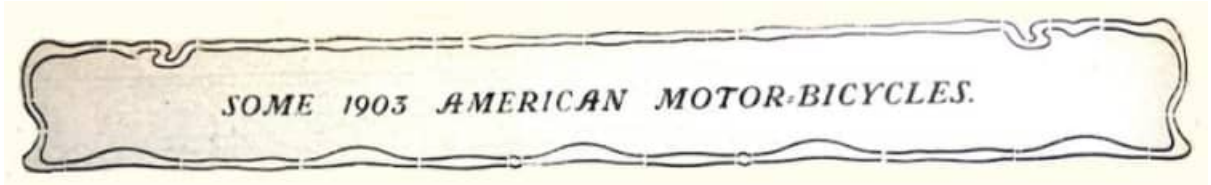
This, according to the original caption, is a rider named Spadoni who won the □ðrstTurin 'Criterium'. He's mounted on a formidable 4hp Zedel (yes, Zedel is best known as a Swiss proprietary engine manufacturer; Tragatschreveals that the French branch of the company made complete bikes).



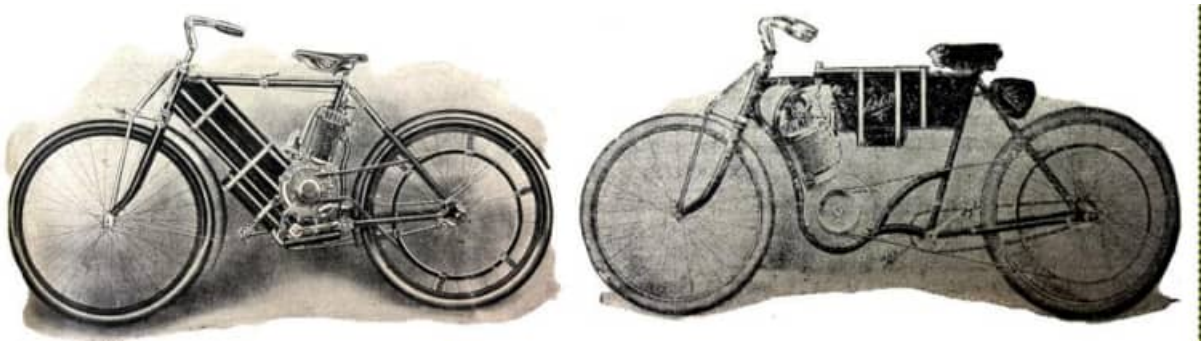
This pic depicts a rider named Cedrino who had just set a 10km "lightweight record" on a Roselli. According to Tragatsch, from 1899-1910 Italian Emanuel Roselli made bikes from the 1hp 'Lilliput" to a 2½hp model, which is presumably what you're looking at here (see below).

Roselli also made cars; this ad Italy indicates that his 1hp Lilliput and his car were noisy enough to make a horse cry.

"MOTOR-BICYCLE IN A BALLOON. The we11-known motorist and balloonist Mr L Bucknall uses his Werner motor- bicycle for a novel purpose. Frequently in his balloon trips he descends mites from a town or railway station, and he □ðnds the machine which he takes in the balloon with him very valuable to get quickly to his destination."

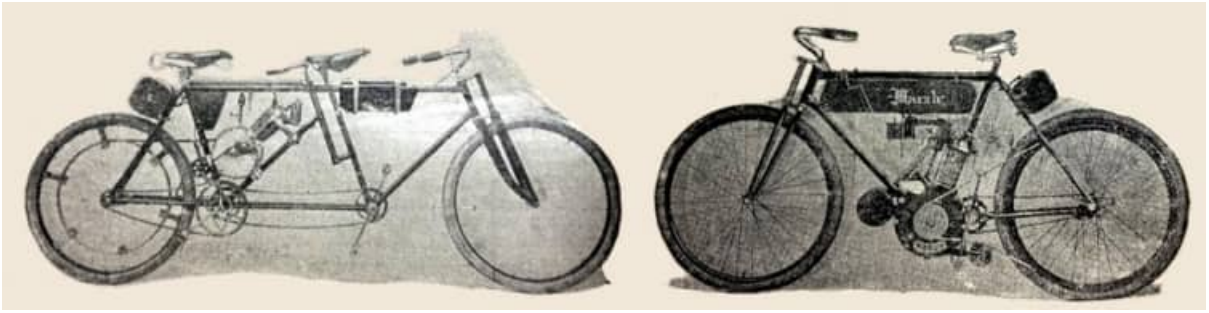


“THEREWASSHOWNat the New York Exhibition an **ERThomas** motor-bicycle which had a distinct novelty □ðttedtoitin the way of driving belts. This consists of a narrow bicycle chain encased throughout its length with a strip of twisted leather. Thisruns over the usual V-grooved pulleys, and the makers claim that the belt is quite non-stretching, the one shown having run 2,000 miles On the same machine was shown a cushion spring fork, which is □ðttedwithaview to absorbing the shocks and vibration from the front wheel. This consists of an additional pair of forks which run up from the axle to the head clip. On the rear stays of this machine there are □ðttedapairof telescope spring pistons and tubes to



“The ThomasMotor-bicycle with Novel Form of Transmission Belt.” (Right)“The Mitchell.”

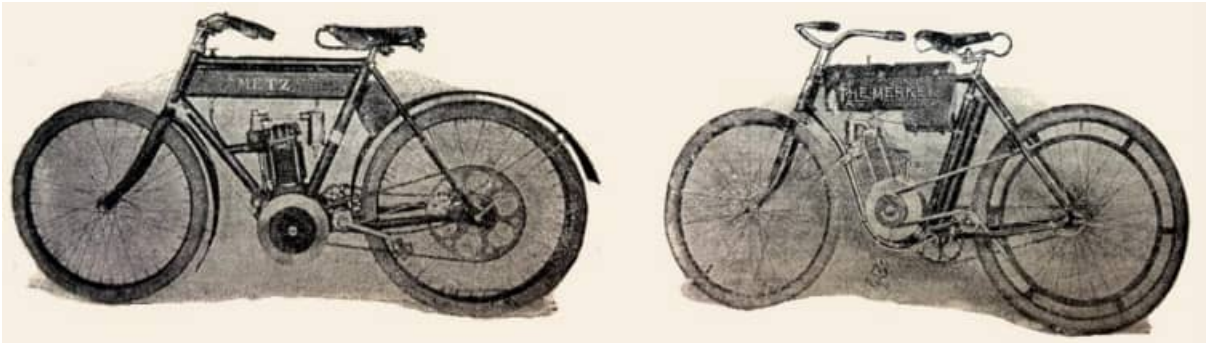
absorb vibration at this part of the machine. “The **‘Marsh’** is a rakish-looking mount, made by the Motorcycle Manufacturing Co, Brockton, Mass. Themotor is a 2hp air-cooled built into the frame in a substantial manner between the seat-post and the bracket junction. Thepedalling position, however, looks distinctly an awkward one, as the rider is far too much forward. By reversingthe T-pinit would be somewhat of an improvement it it did not bring the rider out of reach of the handlebars. Theignition is by means of dry batteries carried in a case on the back forks and induction coil. Thecarburetter is a □ðoat-feedsprayfedfrom a tank carried by the horizontal tube. Thesilencer is of the cylindrical type and looks of very eīective proportions. A good feature in the frame design is a girder head, jointed up at the axle crown and top ball race. Thedrive is by means of a □ðatbeltrunning over a jockey pulley. “The **‘Merkel’** motor-bicycle is made by the Merkel Manufacturing Co, Layton Park, Milwaukee, Wis. Thishas a 2¼hp air-cooled motor clamped in a slightly inclined position in a loop tube, which is carried up to the seat lug and also forms the diagonal. Thereis no exhaust ,box, as the spent gases are turned into the main tube at the support near the combustion head Theignition battery, of the



“Cecil Gibson’s Motor Tandem.” (Right)“The Marsh. Themachine illustrated is minus brake, gear or guards—shownin racing trim only.”

dry type, is carried in a long cylindrical case clipped to the diagonal. Theinduction coil is □ðtted in a case below the petrol tank. Thistank has a capacity of nine pints, to run one hundred miles. Belt transmission is used with jockey pulley adjustment. Thecarburetter is a special form of spray, connected direct to the combustion head. A triple steering head is used, giving ample

strength at this vital point. Speed regulation is by advance spark lever and exhaust valve lifter. "The **'Metz'** machine is produced by Chas H Metz, Waltham, Mass. It has the special features of an outside □ðy-wheelmotorof3hp built into the frame, and has a direct chain-drive. No exhaust box is used, the gasespassinginto the main tube, which acts as a muīler, and the connection tube also helps to support the motor. A □ðexibleclutchisincorporated into the motor sprocket, and this is capable of adjustment to any tension. Ignition is by means of a coil in the seat-pillar tube and a set of dry batteries carried in a case in the angle between the main tube and back forks. Thecarburetter is of a special type, so designed that a uniform level of petrol is always obtained in spray jets, of which there

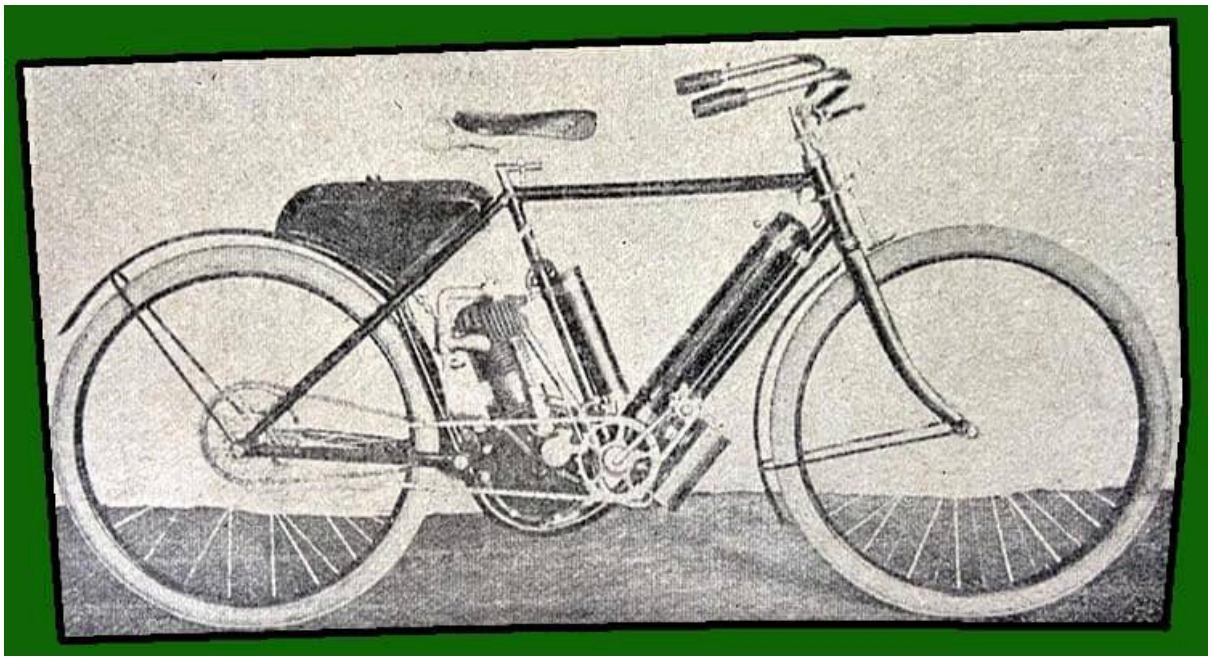


"The Metz." (Right) "The Merkel."

are three, no matter what the angle may be the machine occupies in goingup a steep hill. The framework of the machine is of a very stout gaugeand diameter throughout, and special attention has been paid to the front forks. Thehorizontal tube servesas a lubricating oil reservoir. Themotor is controlled by turning the left handlebar grip, which actuates the spark advance and the exhaust valve lifter. Thebrake equipment consists of a powerful band brake worked, by back-pedalling. Thewheel base is 46in and the tyres are 2¼in diameter on steel rims. This machine is capable of reaching a speed of 40mph and weighs, complete, 115lb. Price is £36. Themotor tandem made by **Cecil E Gibson**, East Ohio Street, Indianapolis, Ind is □ðtted with a Merkel motor, 2¼hp, clamped inside the rear panel of the frame. Thecarburetter is a spray type supplied from a tank □ðxedonthehorizontal tube. No exhaust box is □ðtted,butthe rear handlebar tube servesas a muīler. Belt transmission is used. A sight feed lubricator is used for supplying the crank-case. Ignition is by dry batteries and coil, and speed regulation by spark advance and exhaust lifter; duplex girder front forks are □ðtted. Thepriceof this machine is £38. "The **Mitchell** Co, Wisconsin Wheel Works, Racine, have recently brought out a racing motor-bicycle. This they term the 'mile-a-minute machine'. Themotor is an air-cooled one, giving' 3½hp at a maximum speed of 1,400rpm. Theframe is a specially designed one, braced at the crank bracket and head by curved and web trusses, and duplex or girder front forks are □ðtted. Themotor,which has a bore of 3½in. and a stroke of 4in, is placed in a loop with a forward inclination and is supported by lugs on the crank bracket. Thewheel base is unusually long, being 55in. Ignition is by dry batteries and coil, and the drive by a twisted hide-belt. Thepulley ratio is 4½ to 1, and the carburetter is of the mixing valve type."

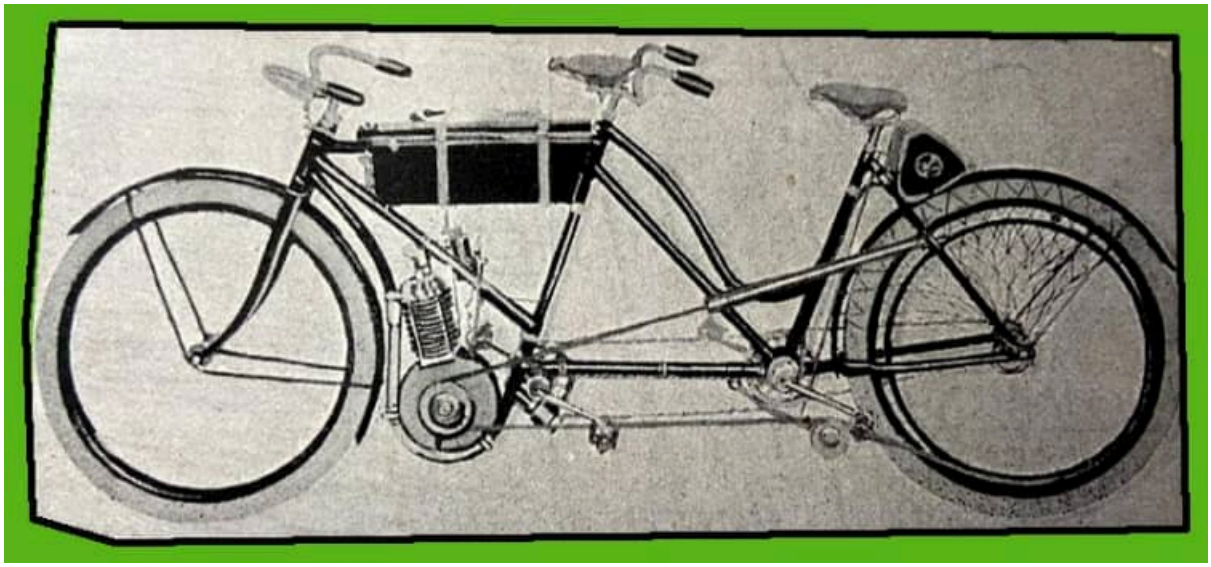
"THE COLUMBIAMOTOR-BICYCLEismade by the American Cycle Manufacturing Co, Hartford, Connecticut. It is distinctly American in its design, and is □ðttedwitha2¼hpair-cooled motor placed behind the diagonal tube, and driving by means of a chain. Thecarburetter is a □ðoat-feed pattern, on the lines of the F.N, the petrol supply tank being placed behind the saddle. Theentire control is eīected by means of the front brake lever, which is arranged to open the exhaust valve with a slight movement, and by reversing the movement the valve shuts. Further movement

advances the spark, and drawing back the lever retards the spark, then lifts the valve, and □ðnally puts on the brake. In addition to the front rim brake, a back hub brake is □ðtted. There is a spring clutch for the chain drive. Ignition is by coil and dry batteries, these latter being carried in a cylindrical case on the main tube. The complete machine weighs 128 1b, and is priced at £45."



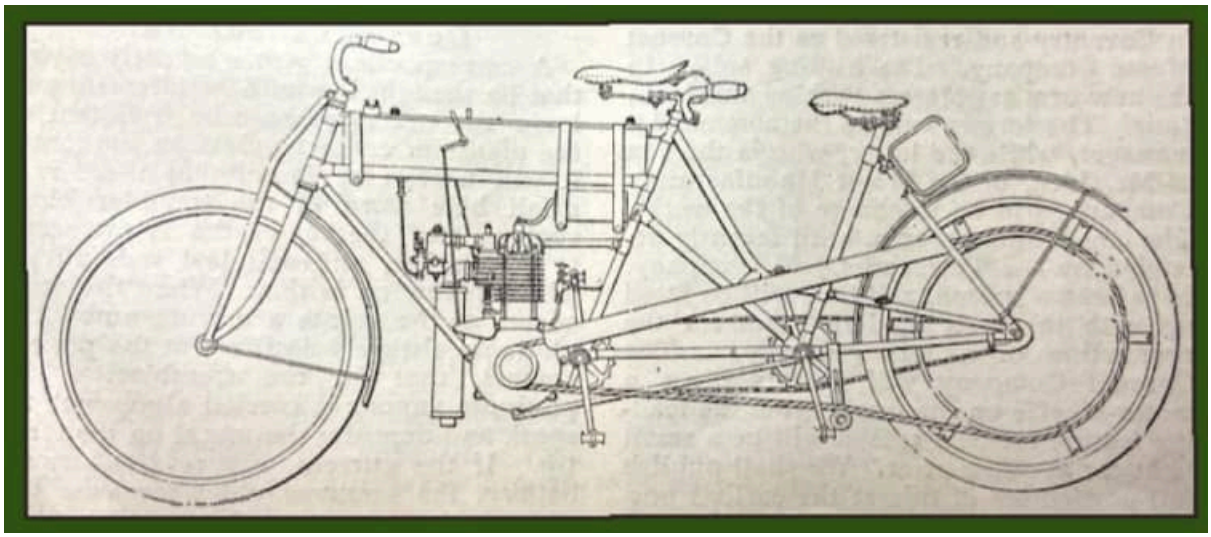
The Columbia had a 2¼hp lump and weighed in at 128lb..

"THE 'WAGNER' MOTOR TANDEM bicycle is made by the Wagner Cycle Co, St Paul., Minn, USA. The motor used is 2½hp and has tapered radiating □ðanges. This is clamped in a loop tube and slightly out of the vertical. The transmission is by a □ðat belt, a jockey pulley being placed close to the rear belt rim. The rear part of the frame is dropped to enable a lady to ride it if required. A notable point is that the exhaust gases are carried away by the looped tube to which the motor is □ðxed. A dry battery and induction coil are carried in a wedge-shaped case secured to the back forks. A spray carburetter is □ðtted and a supply of petrol and lubricating oil is carried in the case seen supported from the horizontal tube, only one brake is used, this being a 'New Departure' hub brake. Controlling of speed and lifting of the exhaust valve is done from the front handle grips. The mudguards are of a better type than usual on American machines and there is also a guard over the chain."



“An American Motor Tandem.”

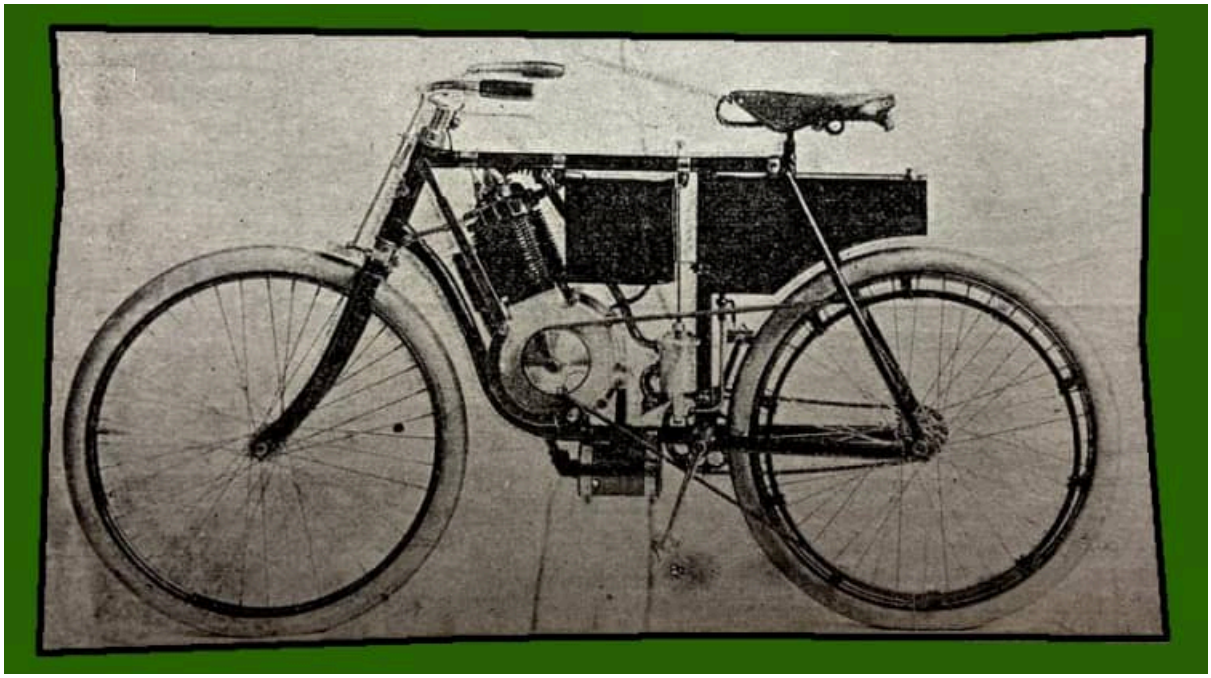
“THE MOTORTANDEMMADEbythe GH Curtis Manufacturing Co, Hammondsport, NYhas a 2½hp motor supporter, somewhat ‘a la Werner’.A special feature of this motor is the main bearing. This has a set of 25 steel rollers held in bronze retainers. Thesilencer is of large dimensions, and the carburetter is of the mixing valve type. Ignition is by an induction coil and set of dry batteries, supported in typical American fashion in a case on the back stays. The transmission is by twisted belt with an adjustable jockey pulley, □ðxedtooneofthe compression stays. Only one brake (of the hub variety) is □ðtted.Specialcontrol is eīected by spark advance and valve lifter. Petrol and oil supplies are contained in a rectangular tank □ðxedbetweenthetwo horizontal tubes of the frame. It is geared 7 to 1, giving a maximum speed of 30mph. It has girder front forks, and the weight comes out at 160lb.”



“An American Motor Tandem with Dropped Rear Frame.”

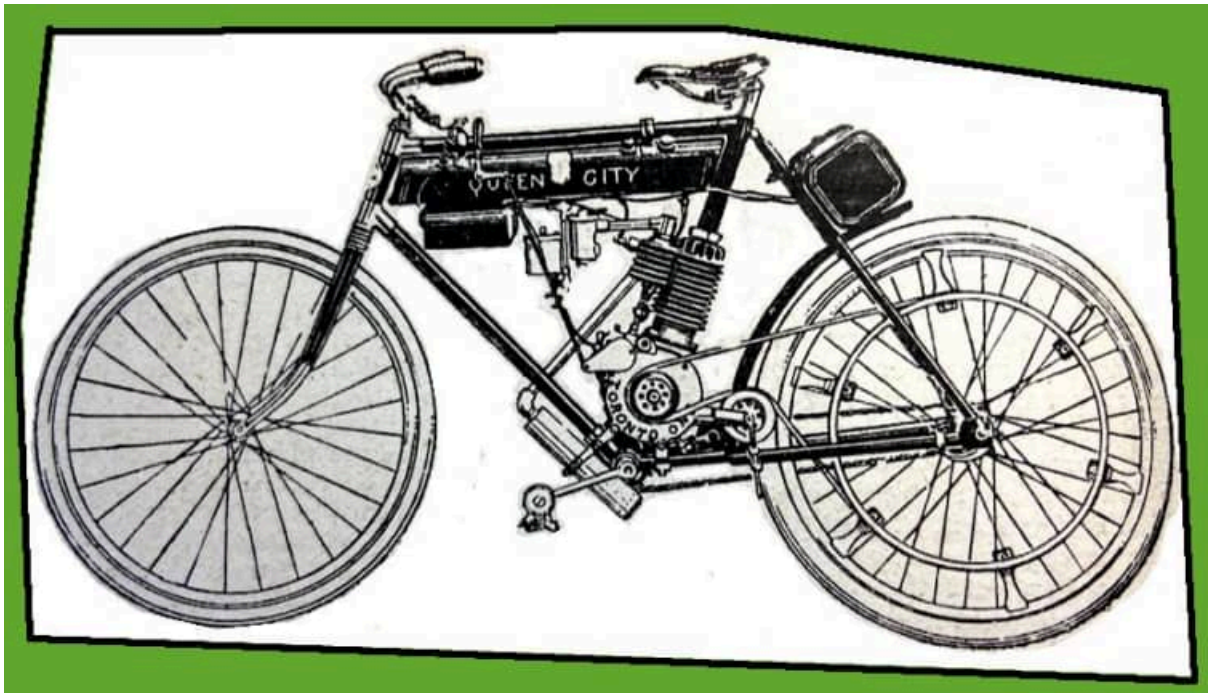
“THE ORIENTMOTOR,which is fast becoming a favourite, is a much larger and more heavily constructed machine than any other motorcycle made, and is distinctly in a class of its own. It has been found from long experience that it is necessary for safety and comfort that a motorcycle which has suīicient strength to stand the great strain of its motive power must also have weight enough to absorb the vibration of the motor. A light-weight motor-bicycle is not a practical or successful machine, and even should it not actually break down and injure the rider,

the vibration from the motor would be so excessivethat the operator would verylikely tire of his mount after a few ordinary rides and the machine would be well shaken to pieces. All these conditions, it is claimed, havebeen carefully considered in the building of the Orient. No working advantages have been sacri□ðcedtotryto make the machine look like an ordinary bicycle, nor has there been any attempt to make the motor or other working parts serveas portions of the frame, to the disadvantageof both. Theframe of the Orient is heavily constructed of cold drawn steel tubing, stronglybrazedin suitable connections. Themotor and operating parts are strongly secured to the frame in the position that practice has proved to be the most desirable, and in a manner to admit of their convenient; removal when required."



"The Orient—a popular American Motor-Bicycle."

"A MOTOR-BICYCLEMADEbythe Queen City Cycle and Motor Works Co, Queen Street West, Toronto, Canada is rated at 3½hp, and has the motor placed in between the diagonal tube and bracket—a favourite American system. Thepetrol tank is of cylindrical shape, supported from the horizontal tube, and supplies the motor by a spray carburetter. Thedrive is by means of a half-inch round leather belt, an adjustable jockey pulley being □ðtted.Theinductioncoil will be seenjust below the petrol tank, and a supply of electricity is obtained from a set of dry batteries carried in a rather bulky looking case behind the rear forks. Speedcontrol is eīected by an advance spark lever and throttle on the carburetter. Theonly brake apparently is a rear hub brake, and there is a notable absence of mud-guards, except an apology for one on the rear wheel. A four-plate crown is □ðttedandsingle tube tyres. The □ðrmalsomakea 5½hp tandem."



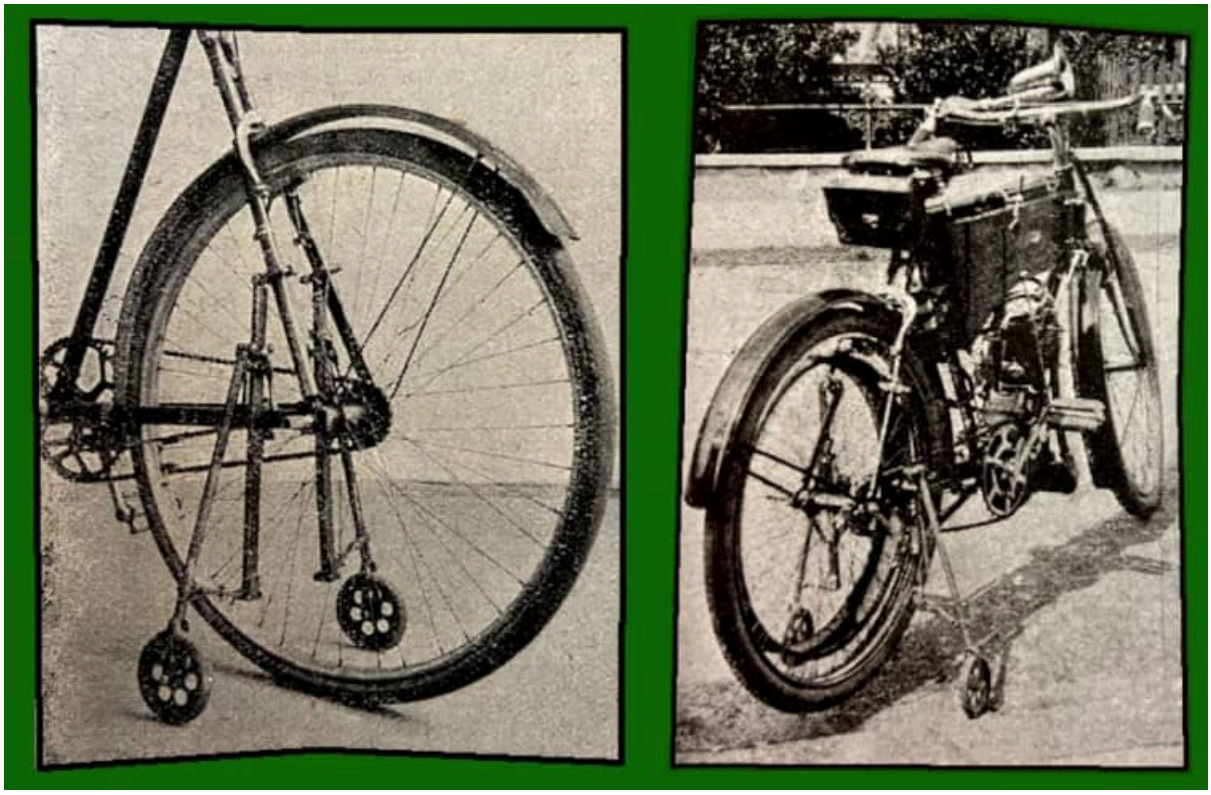
The Queen City—"A Canadian Built Motor-Bicycle."

"THE MEMBERS OF THE Motor Cycling Club gave evidence of the possession of considerable pluck on Saturday week, for despite the fact that the roads were a quagmire, they met at Purley Corner, after safely negotiating greasy tram lines and erratic traïic, and then hied them away to Brighton. The President of the club, Mr SF Edge, drove his 16hp Napier car, with Mrs Edge and Mr JW Stocks on board. Mr Perman drove his Gladiator, being accompanied by Mrs Perman, Mr Swindley and Mr CH Smith. Mr Munn also had a party on his De Dion car. The motor cyclists included Messrs EH Arnott, GE Roberts, E Perman, J Pennell, Mr and Mrs Johns (the latter in a trailer) and Messrs Hayes, Ridings, Fairfax, Marsh and Brett. The road from Purley to Merstham. The road from Purley to Merstham was really wicked, and many years of experience of the Brighton road warrants us in saying that it has never before been in such a fearful state. The riders left Purley at 3.30, reached Crawley soon after 4 o'clock, and left again at 5.15, and within an hour the □ðrstman reached the 'Old Ship' on the Brighton front. This was Mr Hayes, riding a 2¼hp Empire. His machine was □ðtted with the pair of sup-ports which are raised and lowered by movements of the feet. He thinks them invaluable on muddy roads, as they absolutely check side-slip. Mr. Edge'scar had drawn up a couple of minutes earlier, and at a quarter-past six Mr Perman's Gladiator car arrived. Then at 6.25 Arnott on a speedy Werner and Ridings on a Bat came easily in, the latter looking as if he had just come from a potter along the front. The remainder came in at intervals, and soon after seven o'clock all had arrived. At the dinner the riding party was strengthened by friends in the locality, and a very pleasant evening was spent under the chairmanship of Mr SF Edge…in his short address, Mr Edge referred to the suggestions now circulating for an international motorcycle race to he run immediately after the Gordon-Bennett race had been decided, and expressed the opinion that the idea was not practicable. He made the pleasing announcement that he was willing to put up a prize to the value of £20, to be won outright by any member of the Motor Cycling Club in a competition to be organised by the club. Members should be allowed to make individual rides, accompanied by two observers, of a distance of 200 miles, at a week-end. The pace should not exceed 17mph, and every stop, except those authorised for meals, should count against the rider."

“Some of the members who met at Hyde Park for the opening run of the Motor Cycling Club. We need hardly say it was wet.” History does not record the reaction of this hardy bunch when they reached Purley and discovered their club oīicers and their wives snugly ensconced in their cars.

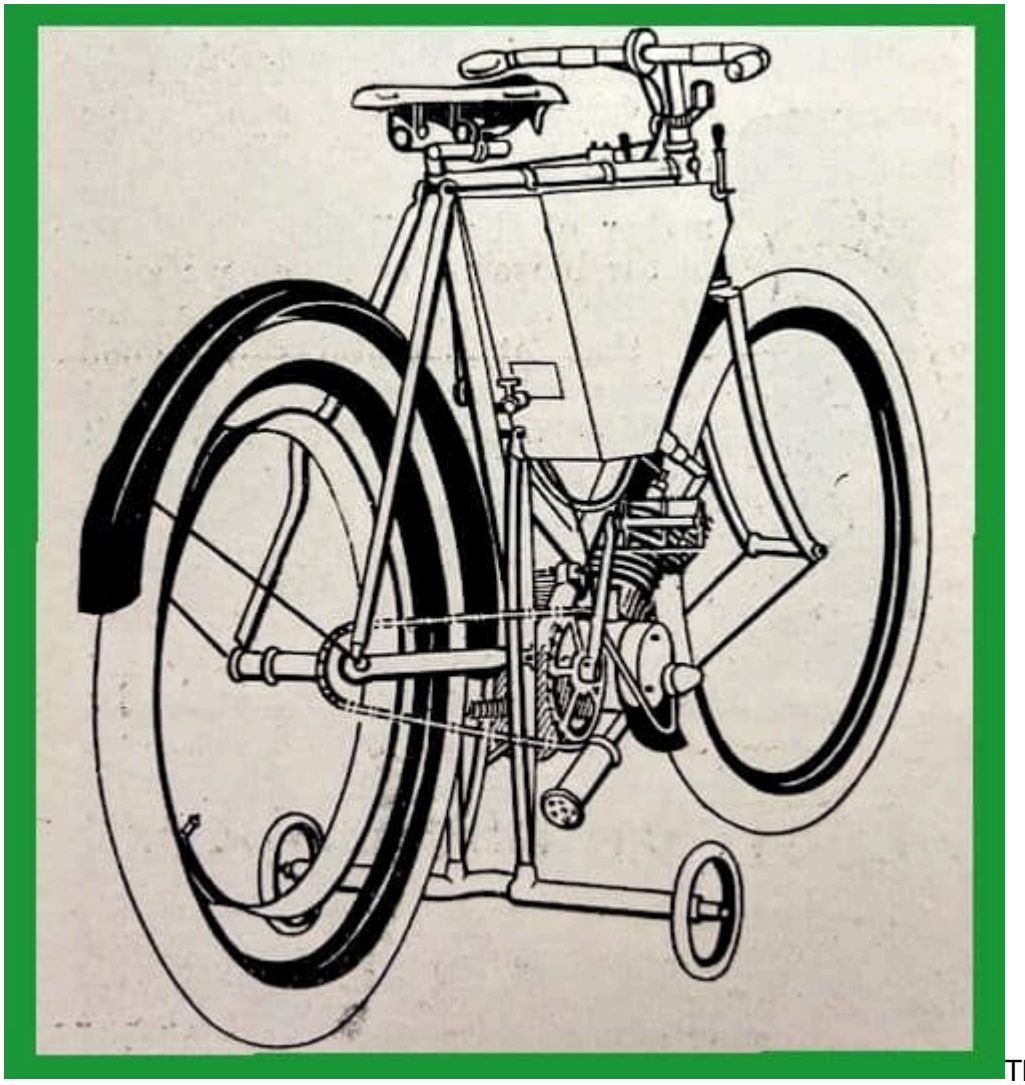
“On the occasion of the run of the Motor Cycling Club to Brighton I had the opportunity of observing the behaviour of the patented device of Mr Hayes, known as the Empire support, and I was struck with its extreme utility. It was an emergency support, a stand, jack, or an anti-skid, according to the needs of the moment. Riding through traīic, the cyclist was able, when forced to pull up, to drop the two legs to the ground, and thus provide himself with a couple of struts or supports until the traīic once more moved forward. When the rider gave a stroke to the pedals, he not only propelled his machine, but the clutch on one of the cranks raised the supports a few inches from the ground, when they folded in close to the frame. Going through the grease it was noticed that the rider kept his supports out in the extended position, so that in case his back wheel slipped, the small wheels at the lower end of the leg on the falling side, would immediately touch the ground, and thus avert the skid, The supporting legs were raised or lowered by the simple movements of forward or back pedalling. As a support in the coachhouse, or as a jack, the device was extremely useful because it was in position whenever it was wanted. This, of course, was its most valued feature, because there was no need to precariously prop the machine against the wall, to the detriment of the plating, and the help of another person was not necessary in order to place a movable stand in position. The device struck me as being so good in practice and, at the same time, by no means unsightly when □ðtted up, that it well merited a word of recommendation at my hands…One of four staī recently put its claims to a practical test on the road, and can state with assurance that by its use side-slip was absolutely prevented. When grease is approached the two small wheels are moved downwards and outwards by back pedalling. Then should the back wheel slip, one of the small wheels

instantly grips the road and the slip is stopped before it has gone far enough to be serious. The device is supplied also as a support or jack only. For this purpose it is invaluable, because it adapts itself to any shape of road. Few roads are □ðat, but in spite of this with the usual pattern stand a □ðat surface must be found or it is useless. On the crown of a road or in the gutter the Empire Support will hold up the bicycle to which it is attached. It can be operated instantly, does not interfere with luggage, and the bicycle can be wheeled backwards or forwards as desired. After having had it in use for a period and discovered its many advantages the writer felt quite at a loss when riding a motor-cycle without the attachment. The price as a jack only is £1 1s, or complete with back pedalling device, £2 l0s, and the makers are The Empire Motor Cycle Co, Bulwer Street, Shepherd's Bush, W, who will supply any further details required.""



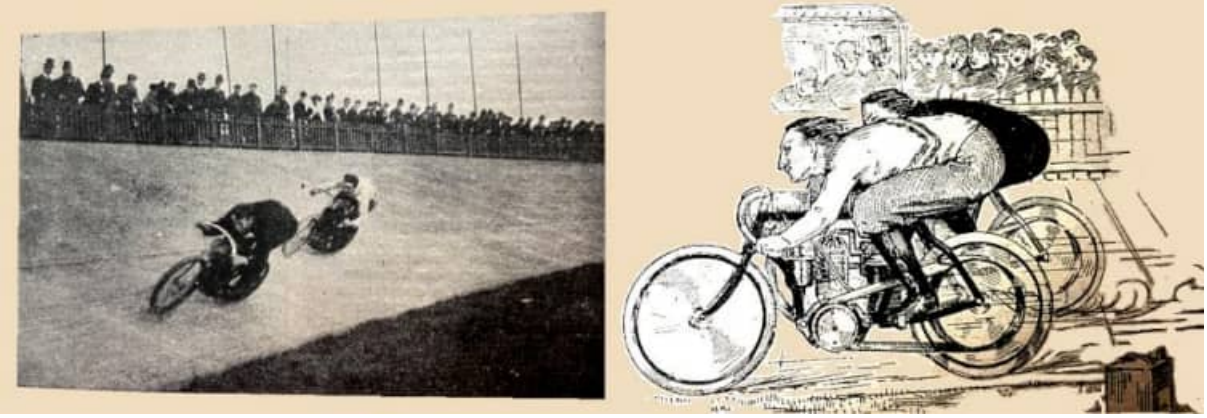
"The Empire BP Support and Non-Skidding Device. We give an illustration of it as □ðttedtoa Kerry motor-bicycle, and this will convey a better idea of the invention than is possible by a description in words."

"THE CLISSOLD MOTOR BICYCLE. The accompanying illustration shows a form of motor bicycle designed to stand upright whether mounted or unmounted. By its use much of the convenience of a motor tricycle can be obtained, while the great and distinctive advantages of a bicycle, speed, compactness, a single track, etc, are not in any way impaired. The special feature is the support. This consists of an arm or crosspiece, at either end of which are two small rubber tyred wheels, which crosspiece or arm is suspended in the middle to two members or stays, these latter being pivoted at their centre on pins □ðxed into the compression stays of the bicycle close to the crank-bracket. When not in use the support is kept in an inclined position by a spring which lifts the small wheels some inches from the ground. It is put in action by rotating the handle-bar, with which it is connected by a cord. It appears to us to be a practical device which will be useful to novices and elderly riders. It is made by the Clissold Cycle Co, 77, Green Lanes, Stoke Newington, N."

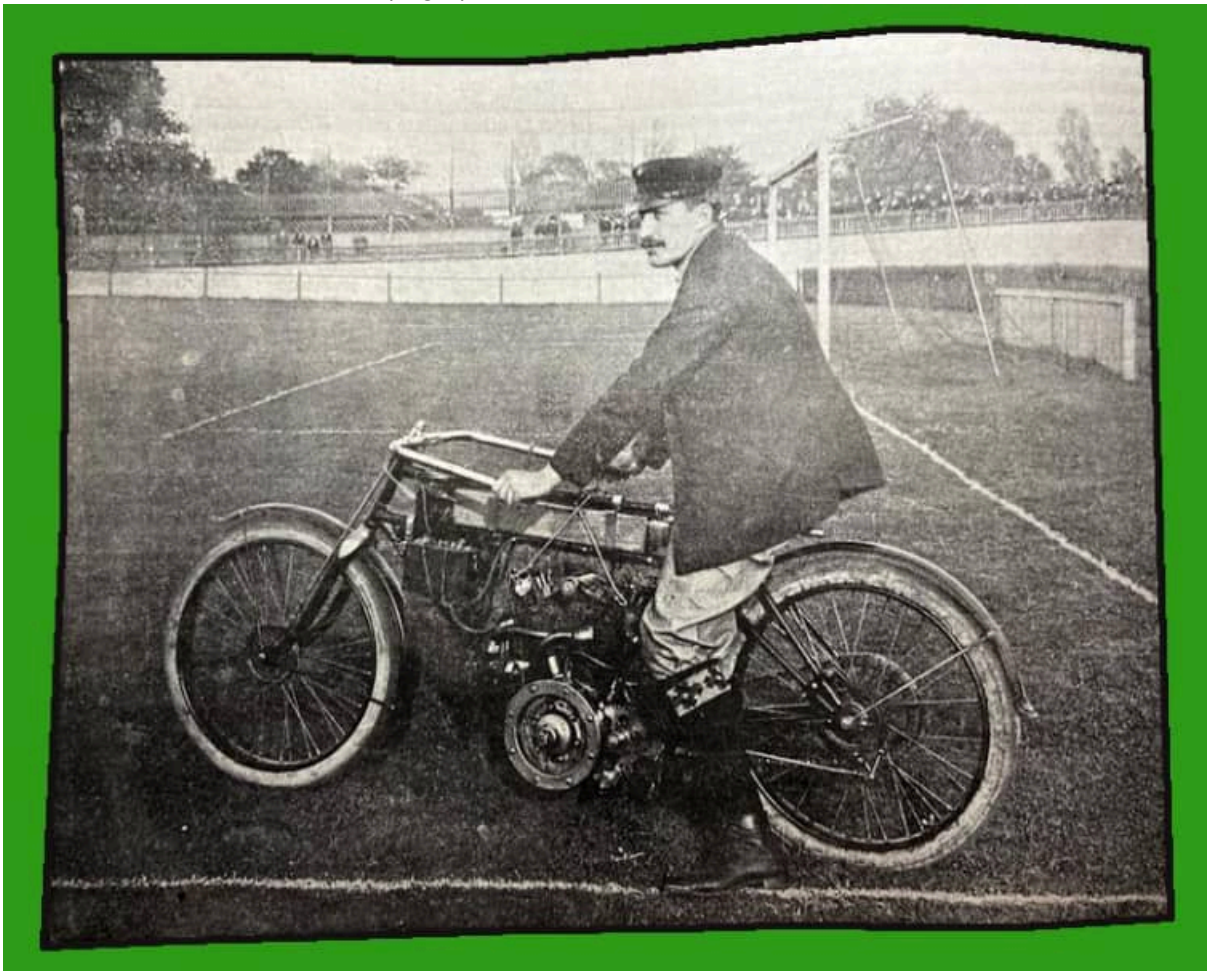


The Clissold boasted a nifty set of stabilisers.

“THE SERIESOFMATCHESbetweenMaurice Fournier and Charles Barden were run oī last Thursday at the Canning Town track before a large ‘gate’ of over 4,000 people. The events were a couple of one-mile races from a □ðyingandstandingstart respectively, making four altogether, with a decider if necessary. Thereis little need for a lengthy account of the matches, Fournier easily winning the □ðrstthreeofthe series, Barden at no time appearing in front, and being almost the length of the straight behind the Frenchman at the □ðnishofthe □ðrstevent.Time1min 14⅗sec. Thestanding start mile was won by Fournier in 1min 23⅗sec; Barden’s time was 1min 40⅗sec. In the third match, □ðyingstart,Fournier’stime was 1min 18⅖sec. It was certainly a most hollow victory.”



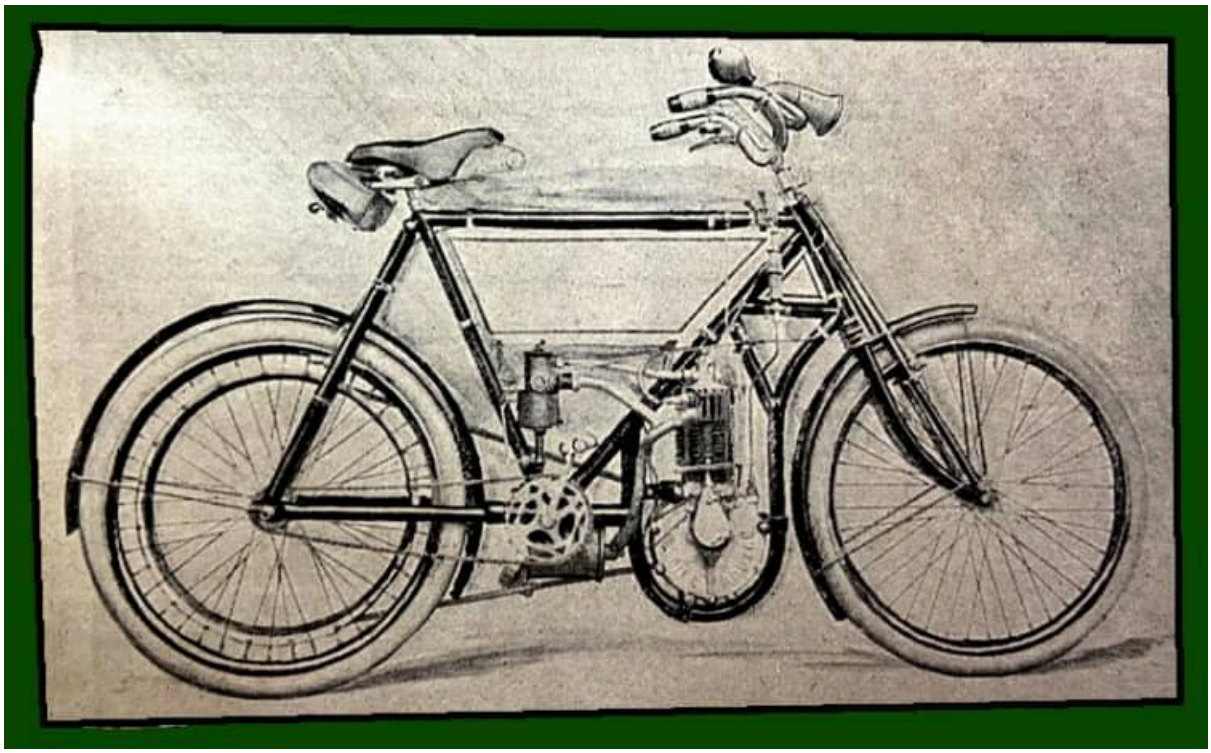
“The Fournier-Barden‘Match’. (Right)“The Contestants”.



“Maurice Fournier on his latest Clement-Garrard two-cylinder motor-bicycle. Takenat Canning Town Track.”Yes, that is a soccer pitch—the bikes raced in West Ham.

“THE LATESTPRODUCTIONinmotor-bicycles of Messrs Pearson Bros, of Elm Grove, Southsea, is a □ðnepieceofwork, doing credit to its designers, and one which will give pleasure to its users. Theframe is specially designed, and it will be seen that great strength is provided at the head—usually- much weaker when high-powered motors are used than is generally thought. There should be no possible ground for hesitation about the frame in this case, because of the support which proceeds from the base of the ball head socket to the motor which it completely encircles. Moreover,the design permits of the motor assuming a vertical position. Themotor is a 2¾hp De Dion, with carburetter and coil of the same make. Other features are Peto & Radford’s

armoured accumulator, automatic oil pump, an exhaust valve lift operated by a Bowden wire, large tanks, giving capacity for 1½ gallons of petrol and 1½ pints lubricating oil, NAB spring seat pillar, Clincher motor tyres, two powerful brakes, and rear mudguards in two pieces, so that the tyre can be reached readily in case of puncture."

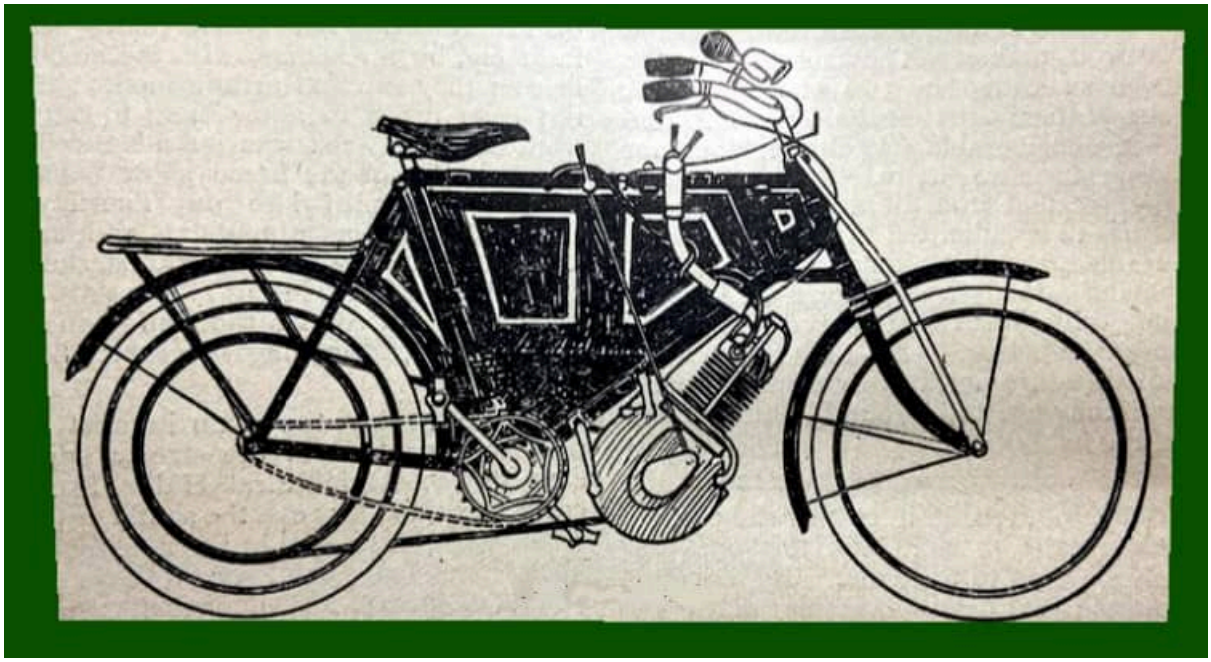


"The Pearson Motorcycle."

"The 'Bowdon' Motor Cycle is designed and manufactured by H Cragg & Sons, Church Street, Altrincham, Cheshire. There are some special features about the design worthy of notice. The drive is by a special double ½in pitch chain of Hans Renolds make. This transmits the drive to an aluminium pulley, which is grooved out to admit a raw hide belt. This is shrunk in and forms a bed for the chain and admits a good grip being taken up by the side and middle plates of the chain. The motor is a 2hp Simms, □ðtted with magneto ignition and a clutch giving a free engine at will. This can be thrown in and out of action by means of a lever. The carburetter is a spray pattern. A lever on the forward end of the horizontal tube is used to advance and retard the ignition. The frame is very strongly built and the down tube is trussed and the motor placed inside. A Bowden back rim-brake is □ðtted, and also a lever brake for the front wheel. The chain-drive machine costs 50 guineas, and if a belt drive is □ðtted instead, 45 guineas."

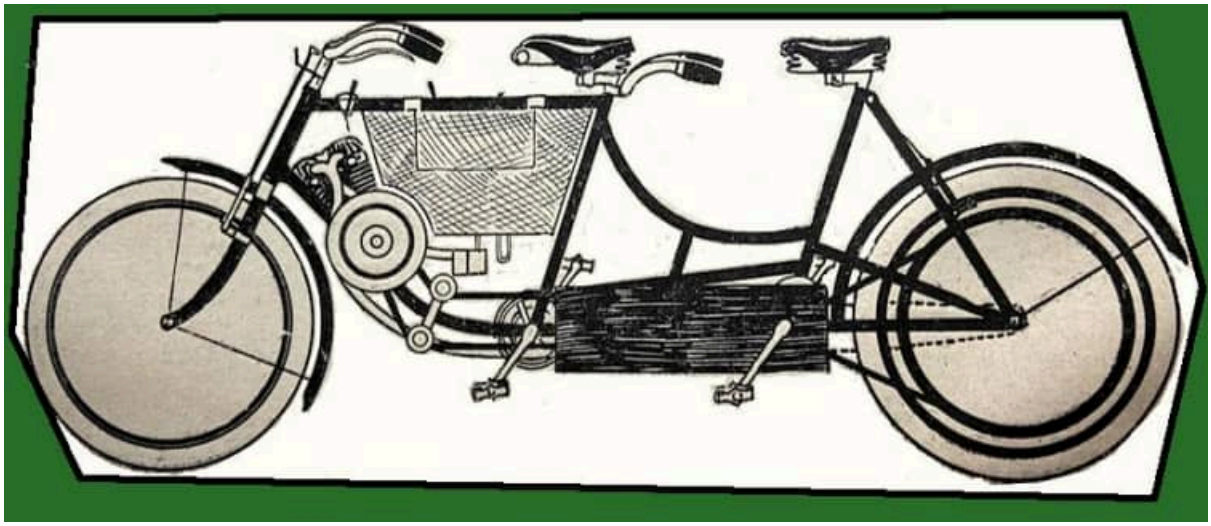
"The 'Bowdon' Motor-Bicycle."

"THE THIRD OF THE 1903 London motor-car exhibitions is now open to the public at the Agricultural Hall, and a brave show it makes. The fact that it has been preceded by two earlier shows, one of them—that at the Crystal Palace—of considerable magnitude, does not seem to have detracted to any very great extent from its success, although it has to be admitted that there is much needless repetition, many of the exhibits having already been shown in London and fully illustrated and described in these columns. At the same time novelties are not, by any means, scarce, and they are to be found in all sections of the exhibition. The **Coventry Eagle Co** show their standard 2½hp touring machine. In this the motor is placed vertically in a loop of a special frame which has an extra long wheel base; duplex front forks of great strength are □ðtted. The motor is made by E Buchet, of Paris, which name is a guarantee of good work. The carburetter is



"The 5hp Coventry Eagle."

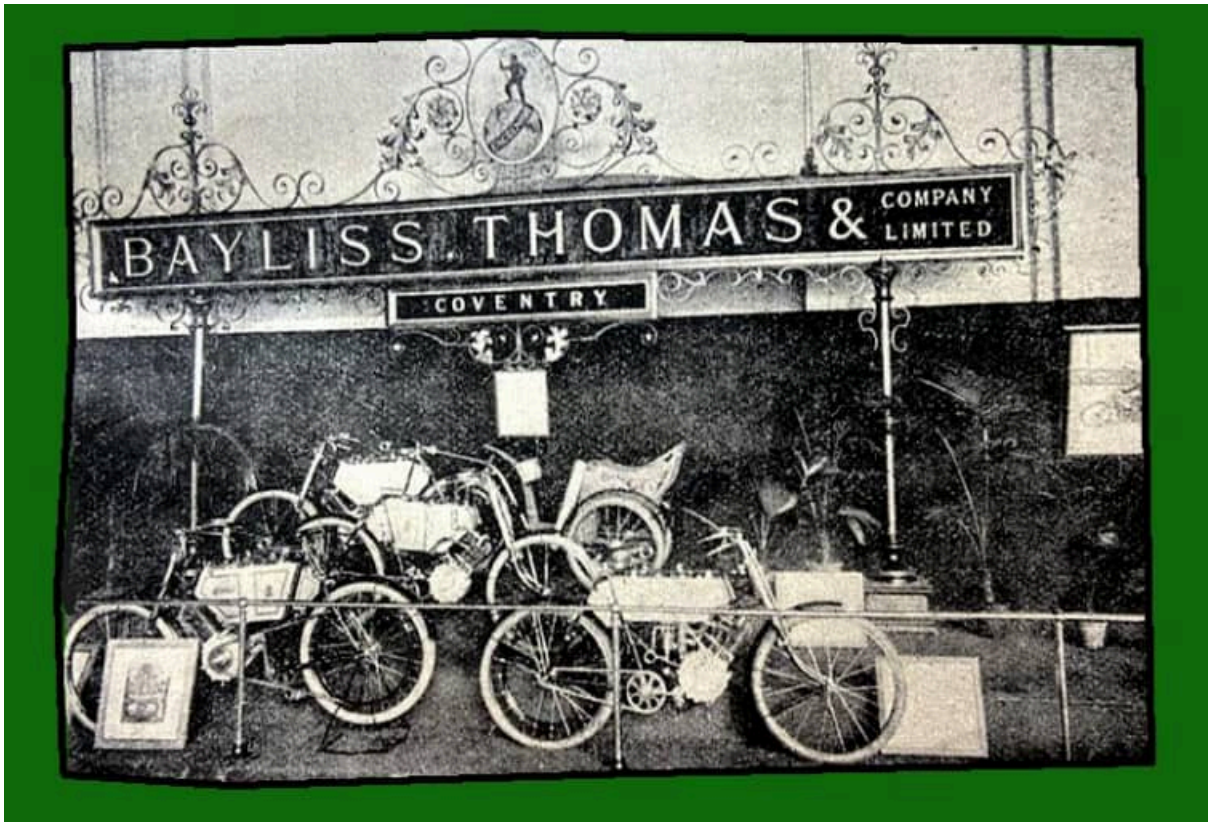
of the FN type. A noticeable feature is the large exhaust box used. Ample brake gear worked by Bowden wires is □ðttedandthe transmission is by a Lincona belt. A high-powered machine □ðtted with a 5hp Buchet motor calls for special notice. Thewhole of the space inside the frame is □ðttedinwiththe tank compartments, and the machine is equipped throughout as a long-distance machine. TheCoventry Eaglefore-carriage looks a thoroughly serviceable and well-□ðnishedvehicle.Anumber of trailing cars are shown, one of these has a reversible body. The springs and upholstering of these little vehicles is excellent. **HP Salsbury**, Harvist Road, Kensal Rise, London, exhibit the 2¾hp Humber chain driver, which has earned such a well-deserved reputation for sale. The **Garrard Manufacturing Co's** Magneto Works, Birmingham, have an interesting display of motor-bicycles and tandems. All the machines are □ðttedwiththefamous Clement motor, and in addition to the featherweight motor 1⅓hp, there are several new patterns. A 2hp size is only a. few pounds heavier than the 1⅓hp size. The 65-pounder now has 26in wheels, extra long wheel base and excellent brake and guard equipment. Thefork crown □ðttedonthemodels is a very strong one. A 3½hp twin-cylinder machine comes out very light, and looks a fast mount. Thetwo-speed gear and chain-drive is now □ðttedtothe 1⅓ and 2hp sizes. Many minor improvements have been made, chie□ðyinthearranging of the regulating levers which now work in notched quadrants. Thelarger powered motors have tanks □ðtted inside the frame. Thetandem which is arranged for a lady on the rear saddle is made with a 2hp and a 2-speed gear, and also 3½hp direct belt drive Thewheel base is



"The Garrard Motor Tandem Bicycle Exhibited at the Show."

abnormally long; the frame is graceful in outline and amply stayed. Thebelt is protected by a special leather guard. All machines have the new Garrard Max□ðeldignition. Thefour-cylinder racer is also shown. **Bayliss, Thomas & Co**, Coventry, have a □ðnestandonwhich they display six of their 2¾hp machines. Theframe-work is of special strength and design throughout, the girder head connection calling for special notice. Thefront forks are very massive, and are carried right up to the top ball race. Thedrive is by means of a Lincona belt. Both surface and spray carburetters are □ðtted, thelatter being the Longuemare type. A very neat and eïicient exhaust valve lifter is □ðtted. Lubricationiseïected by means of a sight feed pump supplied from a small tank placed in the angle between the diagonal tube and back forks. Rim brakes are □ðtted to both wheels. **FA Powell**, Digbeth, Birmingham have a handsomely □ðnishedandwell designed motor-bicycle. It has a 2¼hp motor, placed vertically in a cradle in front of the crank bracket, and drives by a □ðatleatherbelt. Thecarburetter is a spray of the FN type; in fact, many parts of the machine bear evidence of the high-class work of the FN Co. Thetank is □ðxedinthelarge

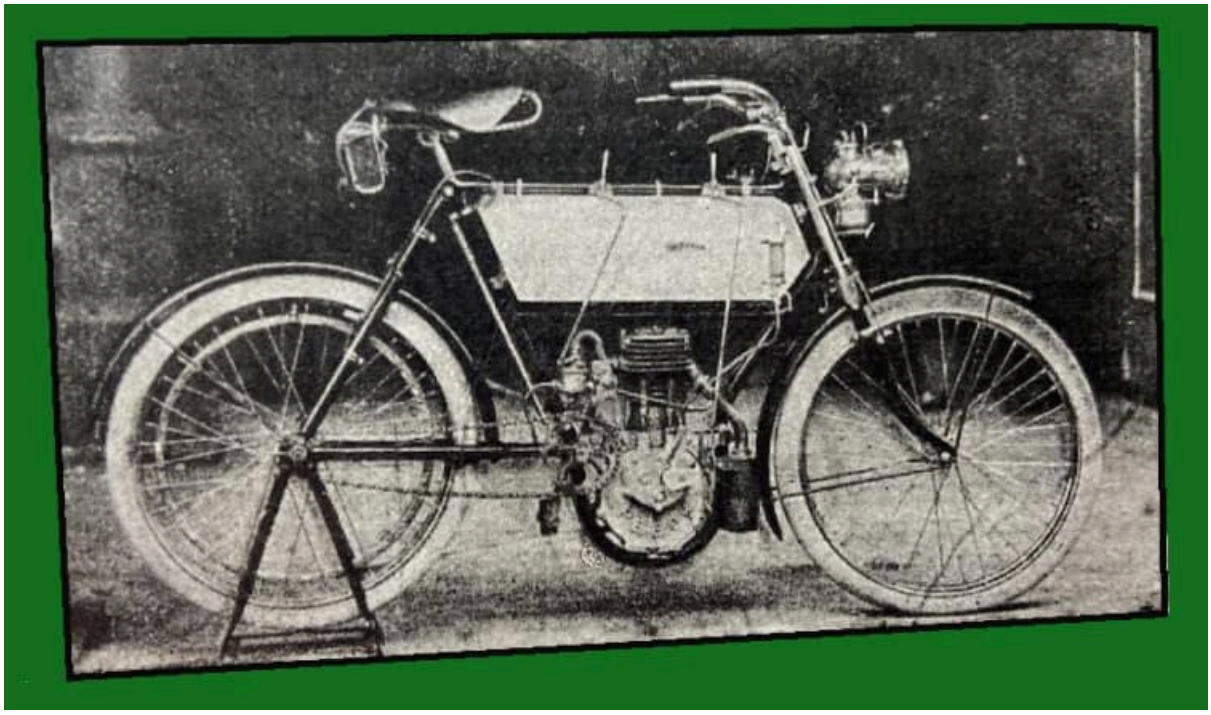
panel of the frame, and is □ðnishedoīin dark bronze. An eīective looking band brake is mounted on the front wheel hub. **Coxeter & Sons**, Abingdon and Oxford show the Abingdon motor-bicycle, □ðttedwiththe 2½hp Minerva motor. It has a Longuemare carburetter and a noteworthy feature is a spare petrol tank placed behind the diagonal. Thelubrication is eīected by a sight feed pump, and the drive is by means of a Lincona belt. Themachine is well equipped with brakes, and nicely □ðnishedthroughout.It is priced at £45, □ðttedwithspecial Liberty tyres. **AW Gamage**, Holborn Viaduct, London shows the RedStar motor-bicycle. Thishas a 2hp vertical engine partly supported in a truss from the diagonal tube, and also between the compression stays and main down tube. Thecarburetter is a special type placed right on top of the inlet valve. Thepetrol and oil for lubricating are carried



"The exhibit of Messrs Bayliss, Thomas & Co, of Coventry."

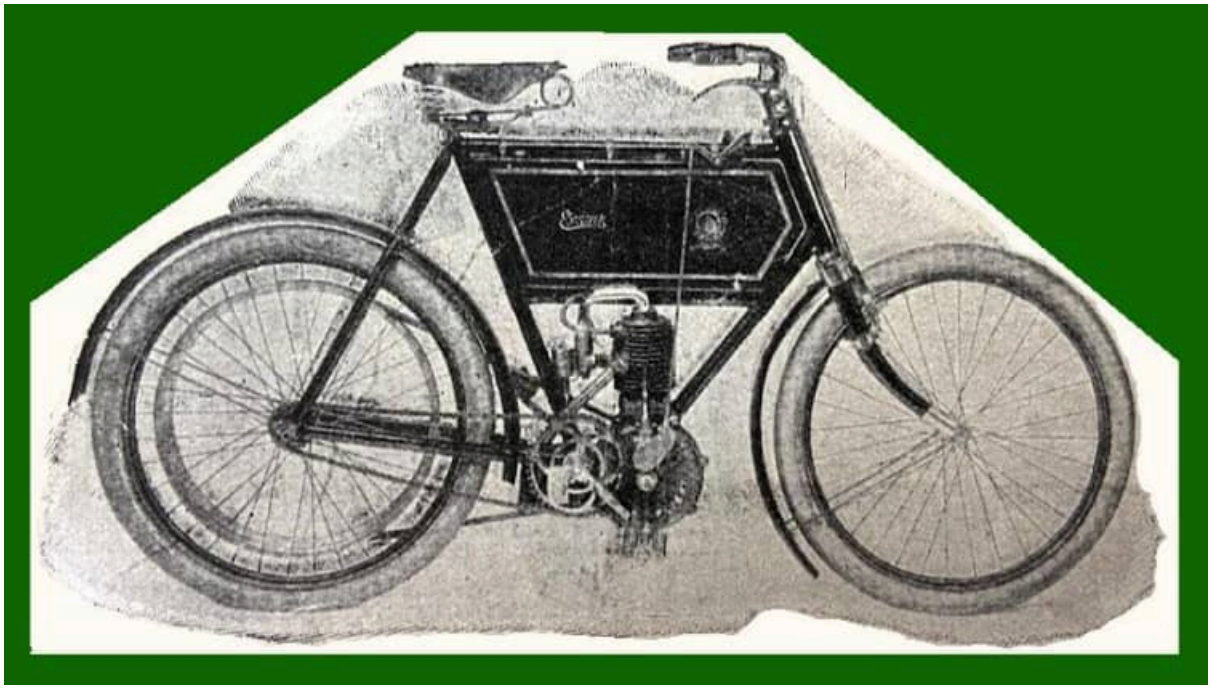
in a cylindrical tank supported from the top tube. Theignition is high tension electric, the accumulator being carried in a leather case behind the saddle, and the coil is clipped on to the diagonal. A special feature of this machine is that the regulation of speed can be entirely eīected by the handlebar grips. Special Dunlop tyres are □ðtted.Herealsowill be found a varied assortment of this □ðrm'sgoods.Newtypesof goggles,with detachable shades, which will be appreciated by fast riders and several new types of head protectors for ladies' use are shown. Diīerent forms of the new spark gap, one to □ðxonthedashboard, and other types enclosed in glass tubes. Thenew Hydra and Pyrossparking-plugs may be seen, and give evidence of being all that could be required. A spray carburetter for enginesup to 2hp, retailing at l0s 6d, with petrol tap as well, seems a well-made and exceedingly cheap article. **The Lancaster Motor Garage**, Lancaster Gate, London, W, showed the 'Hurtu' motor-bicycle, □ðttedwitha vertical 2hp engine with tapered radiators. Thedrive is by means of a V-belt on to a large-diameter belt rim rivetted to the tyre rim. Themotor has a large pulley also. An FN carburetter is □ðtted;ignitionis high tension, the coil being clipped behind the diagonal tube. Thelubrication is provided by a

force pump □ðttedinsidethe tank. Thetyres are Dunlop 2¼in; the brakes consist of a New Departure hub brake and front tyre brake. It is priced at £35. The **PebokMotor Cycle Co**, Leadenhall Street, London, exhibited a 'Pebok' Model de



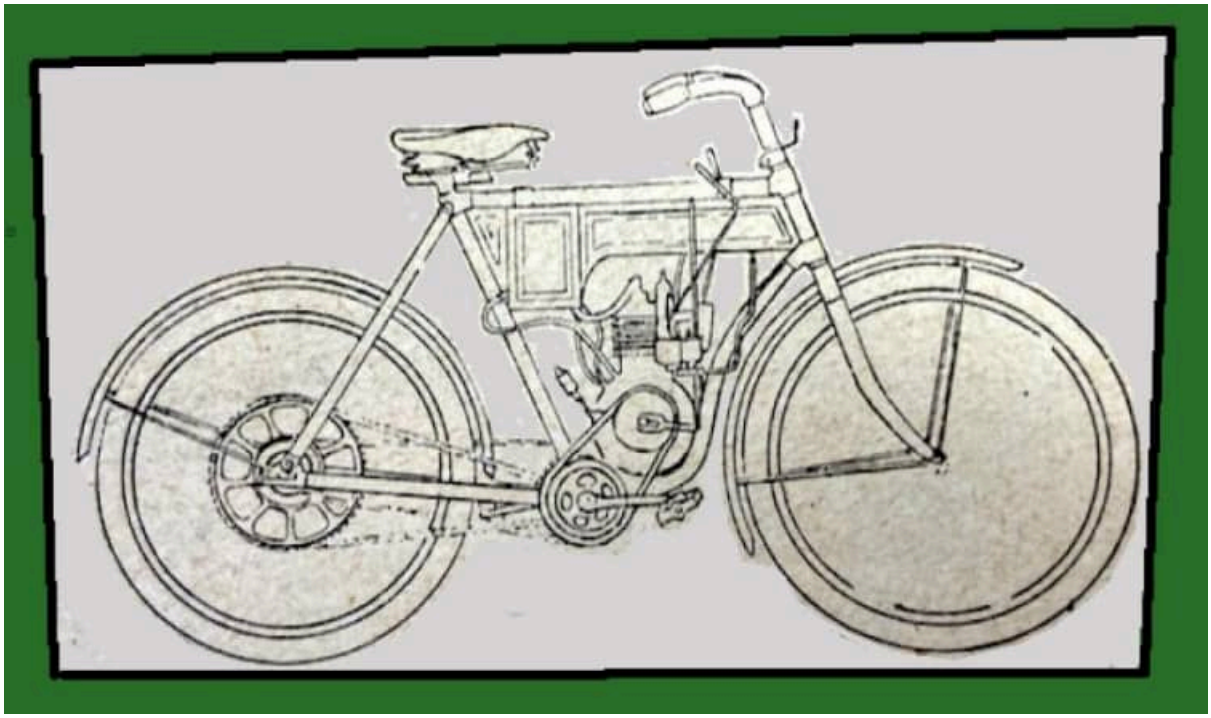
"The Pebok."

Lux motor-bicycle. This has a 2¼hp vertical motor, □ðttedinaloop frame, having a triple head. It can be readily detached by unscrewing two bolts. Thecarburetter is a □ðoat-feedspray;the ignition is by coil and accumulator, the transmission is eīected by a three-ply V-section belt. Thelength of wiring is kept very short, thus avoiding short circuits. Thereare front and back rim brakes, and good size mudguard, The'Goodyear' puncture proof tire is □ðtted.Thepriceis £38. The'Eysink' motor bicycle is a splendidly □ðnishedmachineofDutch make by the **AmersfoortscheRijwiel-Automobielen en Machinefabrick**, Holland; it was shown on the Chenard & Walcker stand. It has a 2hp vertical motor, with cylinder and head in one piece. It is very rigidly stayed at a point below the bracket, and also by a lug to the main tube. It has a single lever control valve lifter and contact breaker acting together. Thecarburetter is a □ðoat-feed spray, and a good feature is the shape of the exhaust pipe, which has only a very slight bend, and thus puts no back pressure on the motor. Thetransmission is by a wide-section V-belt, and the tank is divided up into a series of compartments for the petrol (200 miles capacity), lubricating oil, coil and accumulator. Thewiring is reduced to the minimum length, and two rim brakes are □ðtted,therear one being actuated by a Bowden wire. The wheels are 26x2in. A special point is made of the balancing of the motor, and the machine is remarkably free from vibration. The'Eysink' is being handled in England by the Farman Automobile Co, Long Acre, London. It is priced at £40 and should command a large sale."

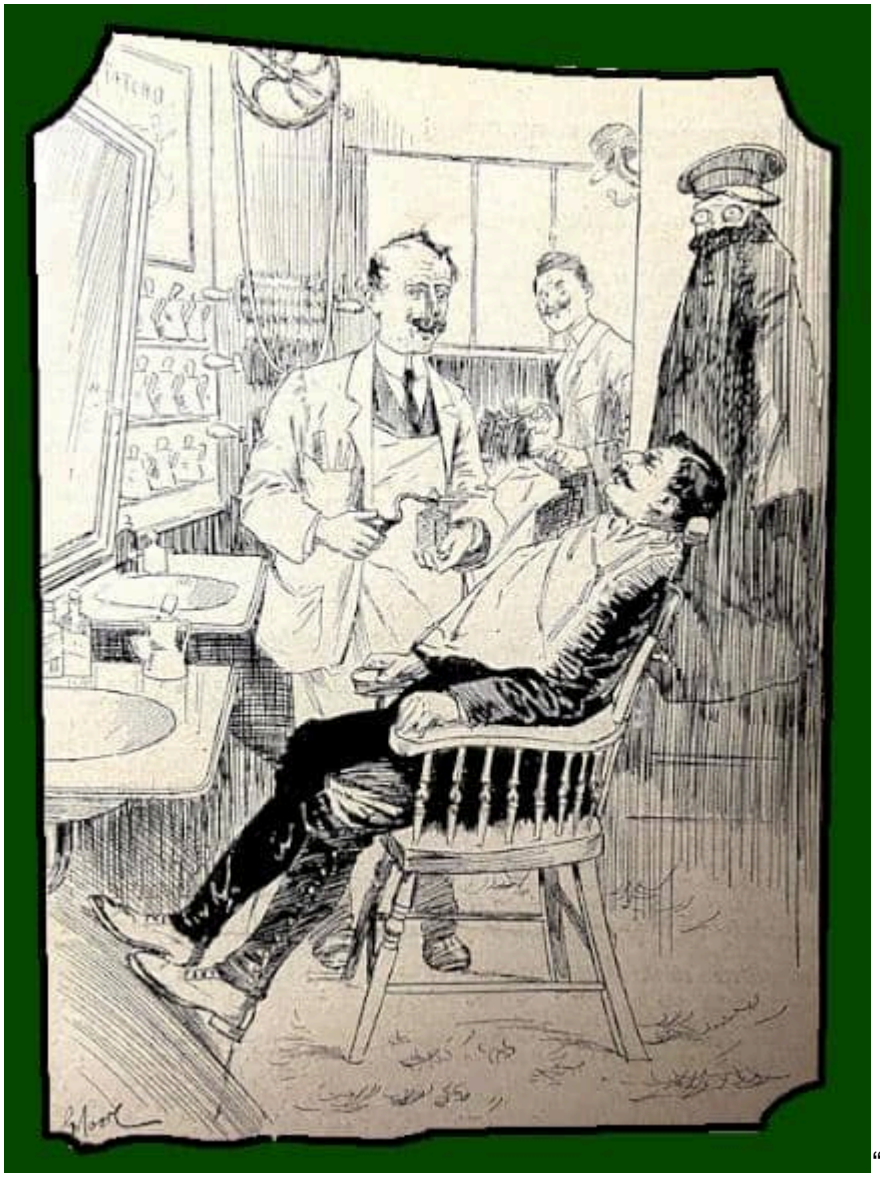


"The Eysink Motor-Bicycle."

"THE 'EMERALD' TWO SPEED GEAR motor-bicycle. Douglas S Cox, Selsdon Road, West Norwood, London, is now making two powers of two-speed gear machines, viz., a 1¾hp at £45, and a 2¾hp double cylinder, £55. The engine is placed in a loop midway between the two wheels. The special features about the motor are: (1) the cylinder is perforated at its base, which assists in the cooling and is useful for examination of the piston and connecting rod; (2) the spring of the inlet valve is outside the cylinder; (3) the bearings are long, and the valves of large diameter, and the cylinder and combustion chamber are in one piece; (4) large radiator surface. Ignition is high tension electric. Either the Longuemare or FN carburetter is □ðtted and drip-feed lubrication is used, which is quite automatic, it only being necessary turn on the oil tap at starting and turn it oī when stopping. The makers guarantee that the 1¾hp motor will take any hill without pedalling, and the 2¾hp will take a fore carriage or trailer up any hill without pedalling, Two rim brakes are □ðtted, and also good wide mud guards, and any make of tyre can be had. The weight of the 1¾hp is 75lb, and the 2¾hp 95lb."



“The Emerald Two-Speed Gear Motor-bicycle.”



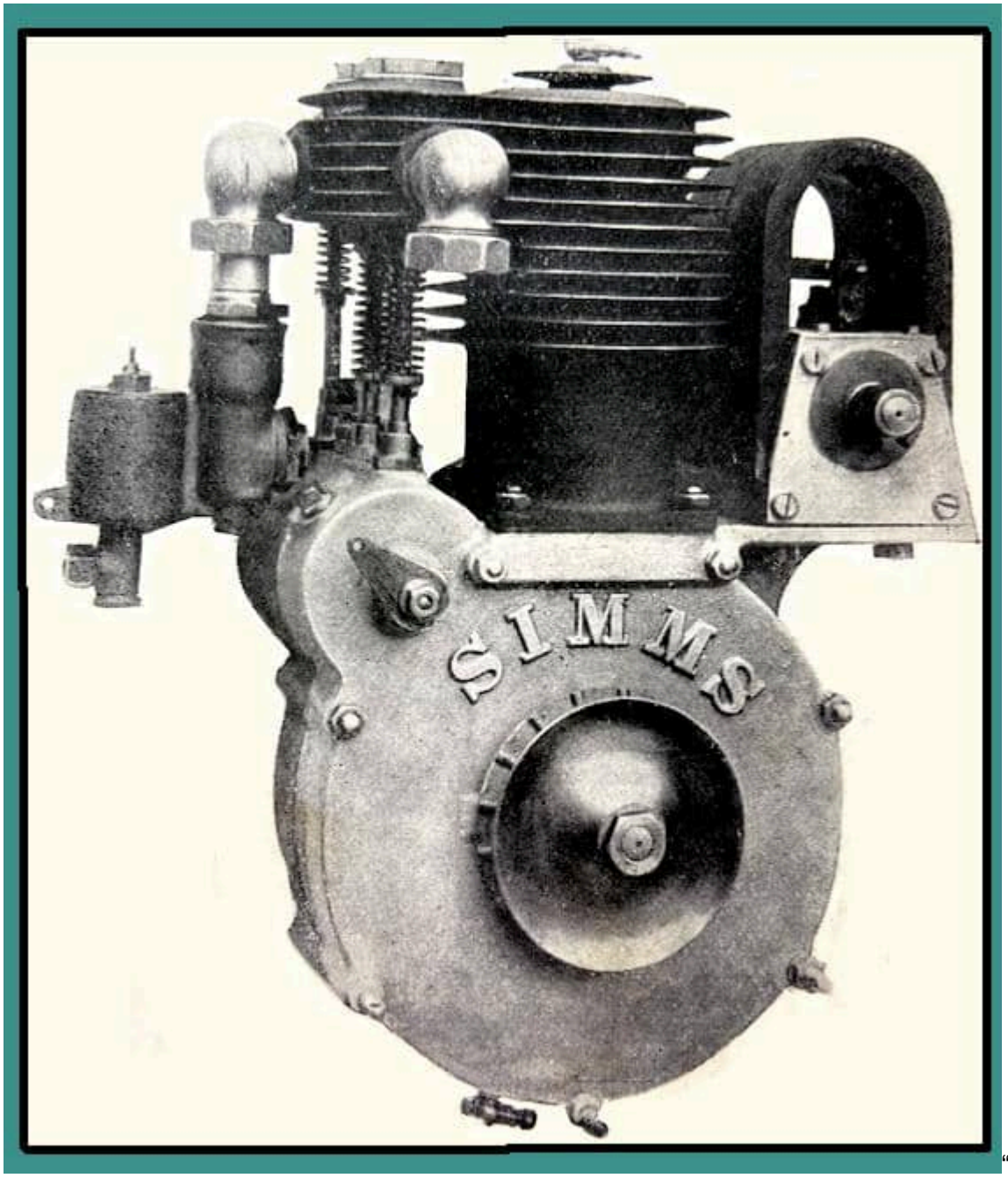
"On the brain! Barber: 'Spray, Sir?' Absent-minded motorist: 'No, surface!'"

"OUR ESTEEMEDCONTEMPORARY,TheWorld,isofthe opinion that the motor-bicycle, as soon as the □ðneweatherarrives,will be largely used by many of the people who took to cycling four or □ðveyearsago,forthe motorcycle has certain charms which appeal very strongly to those who are accustomed to the ordinary pedal-propelled machine…itis far more likely that recruits to motor cycling will continue to come from the ranksof the old cyclist—the man who has ten or 15, or 20 years of cycling experience behind him. Thesociety cyclist who □ðrstlearnedtoride a bicycle in a panama hat □ðveyearsagohasscarcely mastered that art, so that he is hardly to be regarded as □ðttedforthe control of a motorcycle."

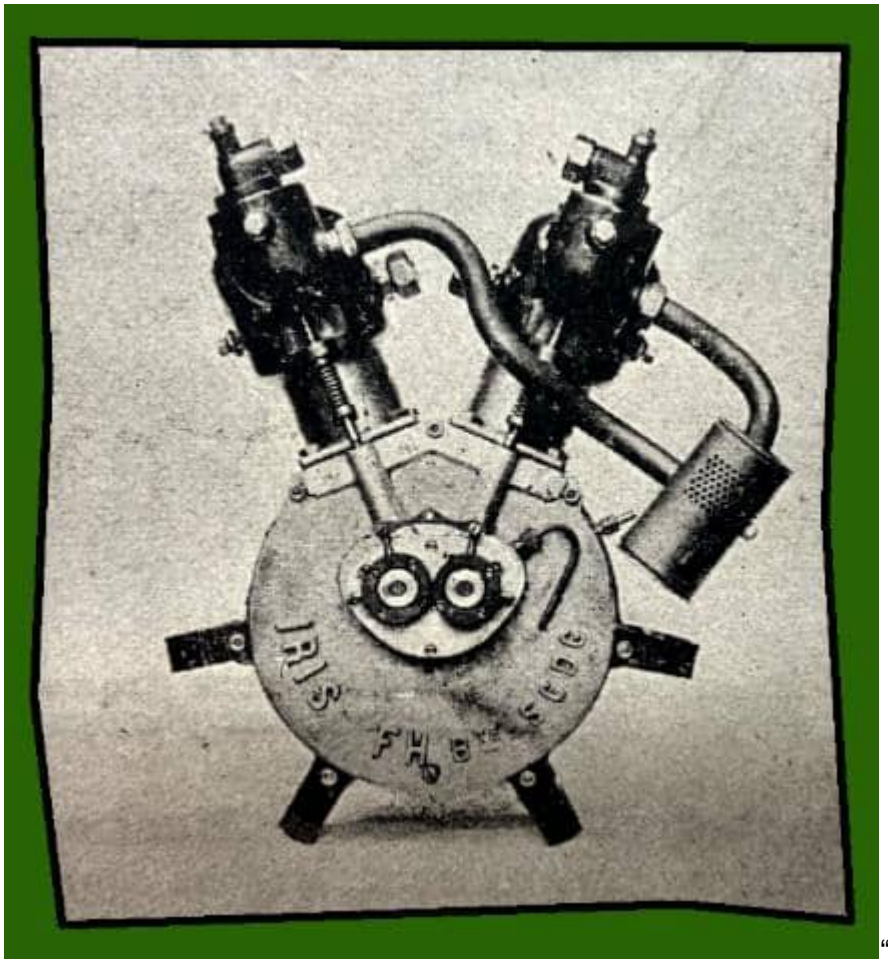
"A GOODMOTOR.Wehave recently had under inspection a 2¼hp motor made by JAPrestwich & Co, Lansdowne Road, Tottenham, London, N. We have no hesitation in speaking of it as an excellent piece of workmanship in all its details, every part having that sharpness of □ðnishso pleasing to the mechanical eye. Thecylinder is 70mm bore and 76mm stroke (2¾by 3in), and has the combustion head cast in one piece with the cylinder. Thecontact breakeris very substantial, and operates in conjunction with an exhaust valve opener of clever design. Another specially good feature is a vacuum valveto keep a good vacuum in the crank case, and prevents

the oil being blown out of the bearings. The top of the cylinder is provided with a handy screw tap for admitting paraīin at starting. The silencer is neatly made in sheet steel, and looks as if it would prove very eīicient. The □ðrm supply a complete set, including carburetter, coil plug, switch and accumulator wires. They supply through the trade only."

"THE SIMMS MFG CO, OF SOUTHWARK Park Road, Bermondsey, SE, are putting an improved type of their well-known Simms bicycle motor upon the market for 1903. The power of this motor is 2¾ bhp actual. The cylinder dimensions are 75x75mm [327]. The □ðrm have experimented exhaustively with mechanically operated inlet valves, and the result of their investigations and experiments proves to their satisfaction that an increase of power does result from their use. They have decided, therefore, to □ðt these to the small motors. The arrangement of the valves is clearly shown in the photographic reproduction given herewith. We notice that the camshaft actuating the valves is enclosed in an extension of the crank chamber, this crank chamber being easily opened for examination by the removal of □ðve screws which are located on the opposite side of the crank chamber and, therefore, are not visible in the illustration. An exhaust valve lifter is □ðtted to release the compression or start the motor, or for driving through traīic. The small lever operating this is seen on the extremity of the camshaft chamber, and is the external lever of the machine excepting, of course, the connections to magneto ignition. The smaller details of the motor have been particularly well attended to and the user's convenience studied in every respect. For instance, there is □ðtted to the top of the cylinder a very useful form of tap which admits of a ready introduction of paraīin or petrol into the cylinder for cleansing or starting purposes. The usual drain cock to the crank chamber is also □ðtted, and the release compression valve to the crank chamber has been so designed and placed that the usual fountain of oil which is injected from the majority of motors after running awhile is entirely done away with. Therefore, the annoyance of spoilt clothing and the trouble of greasy slipping belts are overcome. As will be seen, the spray type of carburetter is □ðtted. The height of the motor over all is 15⅜in, the length 10¼in and extreme width 6¼in; and the total weight of the machine, complete with magneto ignition and carburetter, is 50lb. As the care in selecting materials and the quality of the workmanship put into the Simms motors are so well known and generally recognised, comment on these points is super□ðuous."

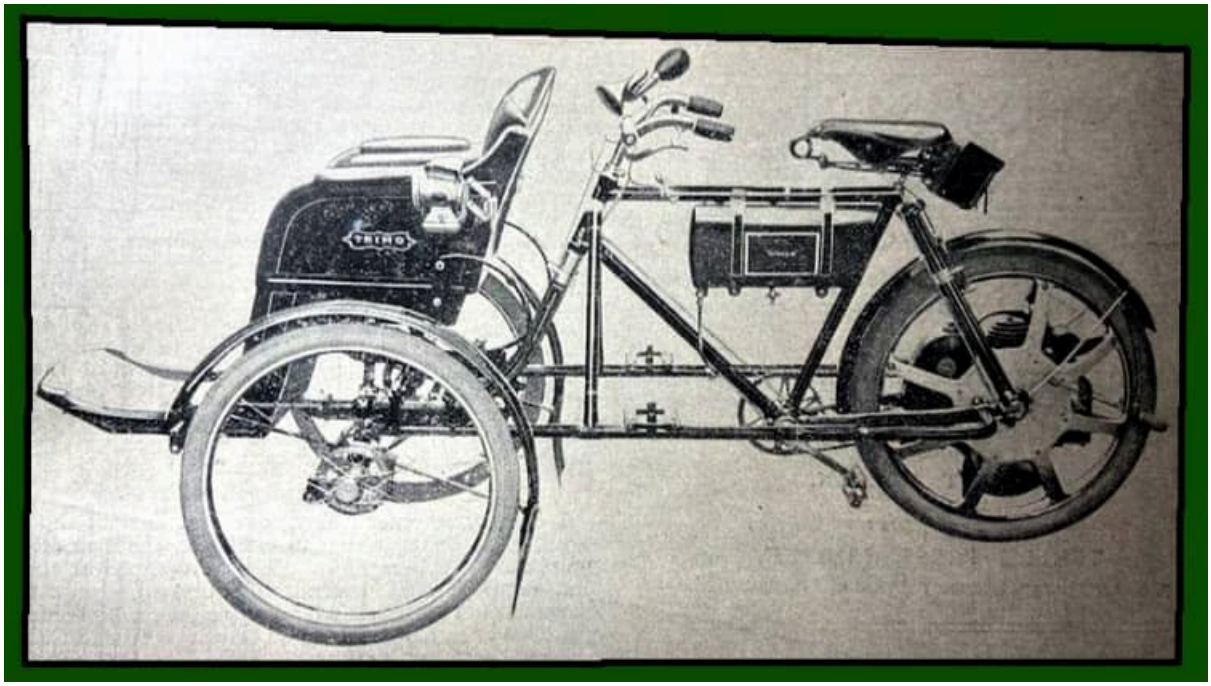


"The Simms 2¾hp engine, with mechanically operated inlet valve."



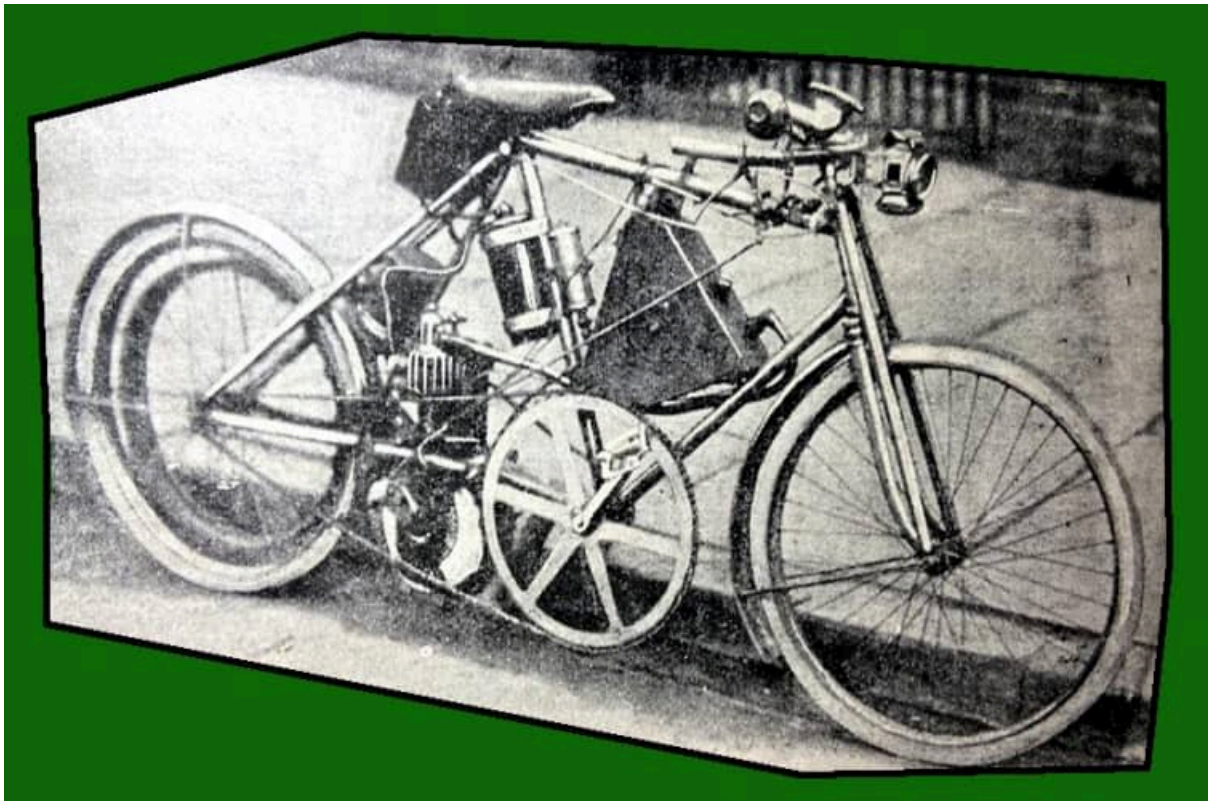
“The illustration shows a well made two-cylinder motor with water-cooled head, and developing 5hp. This is known as the ‘Iris’, and is placed on the market by the Iris Motor Co, Holland Street, Brixton, London, SW. The cylinder dimensions are 68x78mm [566cc]. The contact breaker is a special type requiring no trembler on the coil or motor. The motor is suitable for □ðttingonloopframes for motorcycles; it is also well adapted for driving a small car.”

“The accompanying illustration shows a Singer motor-bicycle to which has been □ðttedatthe instigation of the Singer Cycle Co, one of the Trimo forecarriages made by Jvan Hooydonk. The tout ensemble is exceedingly neat and eīective.”



“Singer Motor-Bicycle with Trimo Attachment.”

“SIR,—HAVINGMADEA MOTORCYLE,ofwhich I send photo, I am desirous of trying it around a track. Perhapssome of your readers will be kind enoUgh to inform me how to proceed for obtaining admission to a track in the London district, and which one would be the most suitable for a novice to ride on. I have had no previous experience of track riding. I must thank you for the valuable information, re wiring of De Dion coil, which I received by post. I might say that the machine is geared to 160 and □ðttedwithaDe Dion 2¼hp engine.
A Constant Reader.”



"Illustrating letter from 'Constant Reader'."

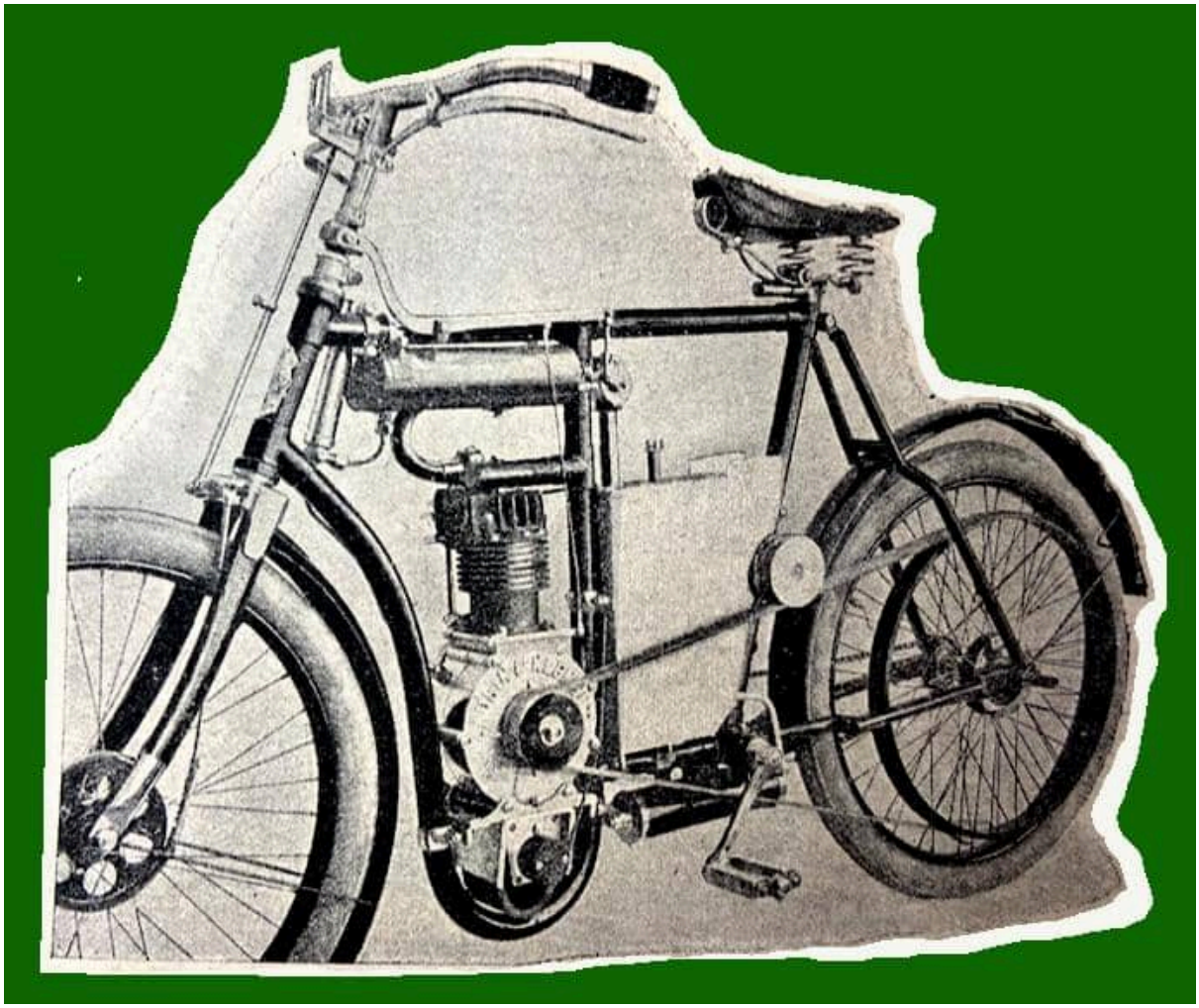
"MOTORCYCLESARENOTALLOWEDtobe ridden in Paris unless □öttedwithtwo eīicient brakes, and the Prefect of Police has refused to pass brakes of the back-pedalling hub-type. Rim brakes are, as a consequence, in much demand, and, there is at present a big run on the Bowden pattern."

"THE AUTO-CYCLECLUB.TheAutomobile Club has given earnest of its intention to cater thoroughly for motorcyclists by adopting the scheme which was drafted by a member of the Motorcycle Advisory Committee who has had many years' experience in administrative matters in connection with the pastime of cycling. It has been carefully discussed and amended in committee, and is now □ðnallyapprovedbytheClub, so that in its elements it should be thoroughly sound and practicable. Theaim of the Automobile Club and of the motorcycling members has been to make the new body as much as possible a part and parcel of the parent Club, but leavingso clear a line of demarcation between the two that the member of the motorcycling organisation should not be able to think that, being a member of a branch, he was therefore a member of the Automobile Club. TheAuto-Cycle Club is the name chosen, and it is the one which is open to the fewest objections."

"A LADY'SPLAINT."Motorina" makes a practical suggestion in the Motor Cycling Club Gazette. She rides in a trailer, and appeals to speed cyclists not to 'hang on'. She says: 'A woman's nerves are easily up-set; a weird grunt uttered within a few feet of the passenger'shead,-which sounds as if it were coming from the depths of an unoiled back wheel hub, is very alarming.'"

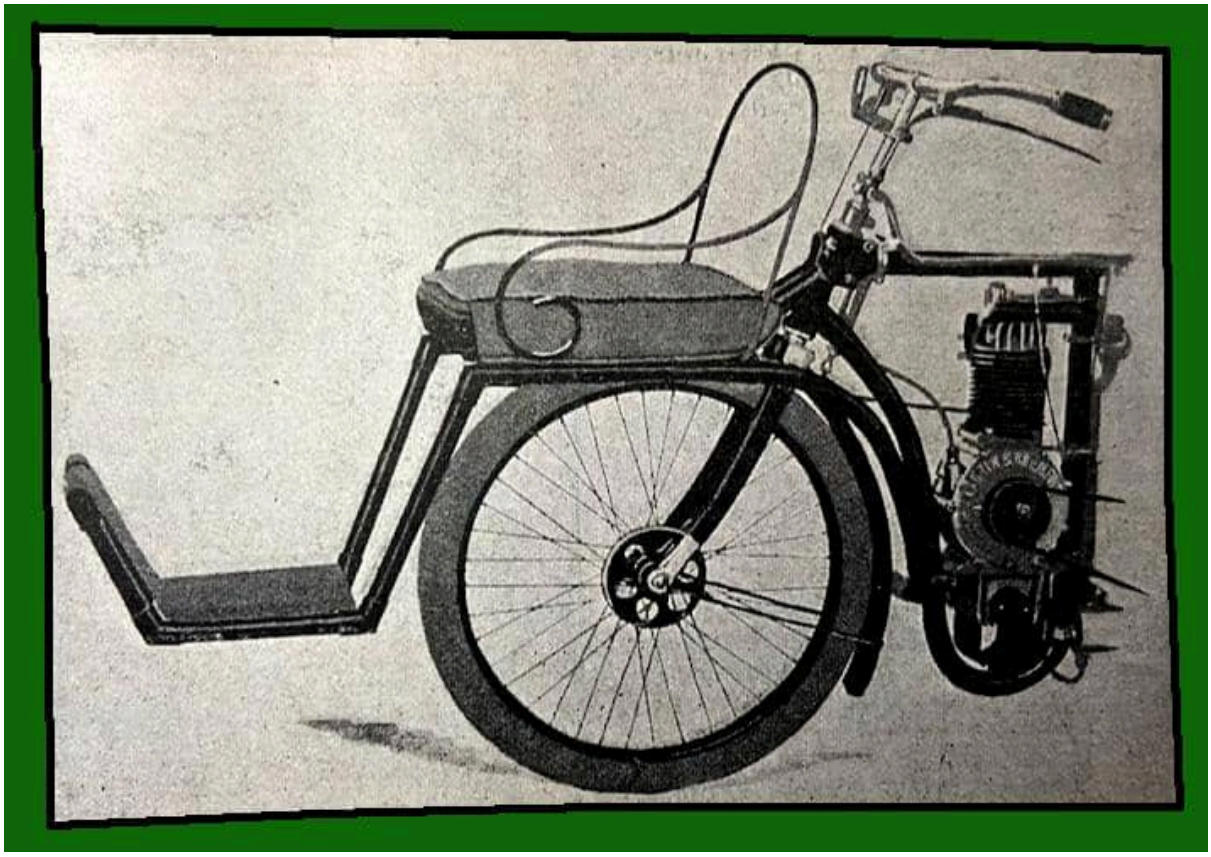
"WE ILLUSTRATETHISWEEKtwoContinental made motor-bicycles, both possessing many interesting features. One is made by Thein and Goldberger, Vienna, and has the motor clamped vertically in an angular bracket, forming an extension to the main tube and bottom bracket. A special feature is the ignition, which is on the 'Eisemann' high-tension magneto system, in which an ordinary spark-plug is used. Thearmature of the magneto dynamo is driven by a chain

from a sprocket on the 2 to 1 shaft. The current then passes into an ordinary coil shown behind the diagonal tube, and this raises the pressure to give a jump spark. The silencer is of a special type, with two expansion chambers, and the drive is by means of a round belt. The spark in this form of ignition is advanced by moving a contact breaker on the magneto. The other machine is the 1903 Laurin and Klement, for which the agents in England are Messrs Hewetsons, Tottenham Court Road, London. The frame has been considerably modi□ðed, and the motor is placed rather lower than previously, being supported in a loop formed by the main down tube. The ignition is by means of a low-tension magneto dynamo, mounted below the motor, having a rotary armature driven by chain. There is a make and break inside the cylinder, and the spark can be advanced at will. The surface carburetter is retained, and included in the large tank □ðxed in the rear panel of the frame. The regulation of speed is mainly eīected by a throttle valve and exhaust valve lifter, coupled up to a lever seen alongside the horizontal tube, and then this joins up a lever under the handlebar. The lubricating oil is carried in a cylindrical tank just over the motor, and this supplies a small force pump. The transmission is by a □ðatbelt, with a jockey pulley for adjusting the tension. The rear belt rim is spoked on to a separate hub, instead of being fastened to the driving wheel spokes. A special feature of this machine is a powerful band brake, acting on the front-wheel hub. The wheel base length of this machine is above the average, and the hill climbing capacity very high."



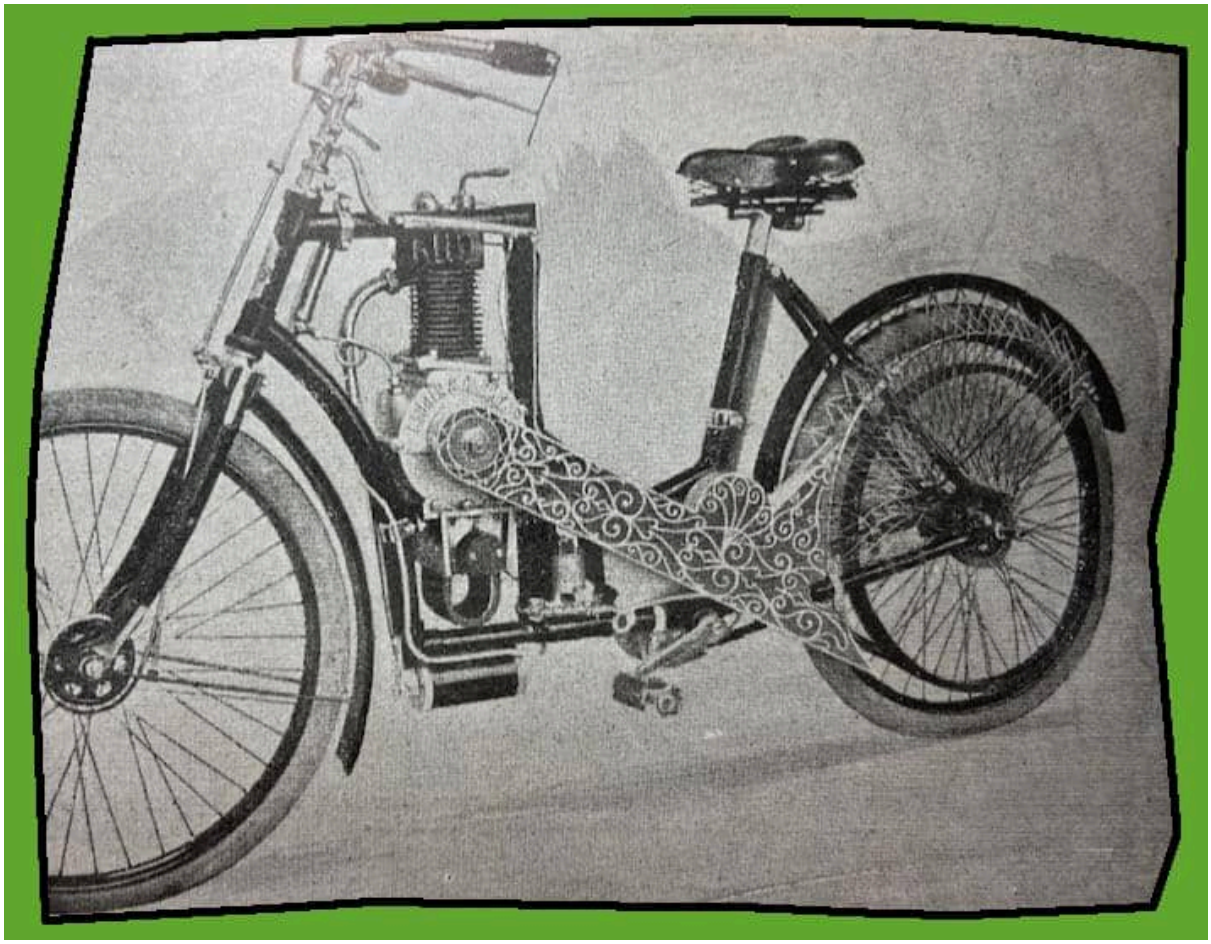
The Laurin & Klement hailed from the Austro-Hungarian empire.

“A VERYSIMPLETYPEoffore-carriage is made’ by Laurin and Klement, Jungbunzlau (Bonnen), Germany. It consists of a tubular framework and cushioned seat which is supported just above the front wheel of the bicycle. Theattachments consist of a heavy clamp □ðxingontothesteering socket and a curved extension tube which clamps on to the main tube of the frame just below the crank case of the motor. Thisattachment certainly has the merit of simplicity and easy attachment without havingto removethe front wheel; but what is rather a doubtful point is the eīect the attachment would haveon the steering, especially as the weight does not movein the. same plane as the steering wheel.”



“A Novel Fore-carriage for Motor-Bicycle.”

A MOTOR-BICYCLEFORLADY’SUSEismade by Laurin & Klement of Jungbunzlau, Germany. It is a novel type inasmuch as it is built with a drop frame, to enable a lady to ride it. Themotor is a 2½hp type, having a rotary magneto ignition, placed below the crank case. Thecarburetter is mounted just abovethe bracket tube. A somewhat ornamental belt guard, which will appeal especially to the ladies, is a rather notable feature. Thepetrol supply tank is □ðttedinbetween the diagonal and back fork tubes. All lever control is eīected from the handlebar. Judgingfrom appearances,we should say the weight of a machine of this type would renderit verydiīicult for a lady to start and handle.”

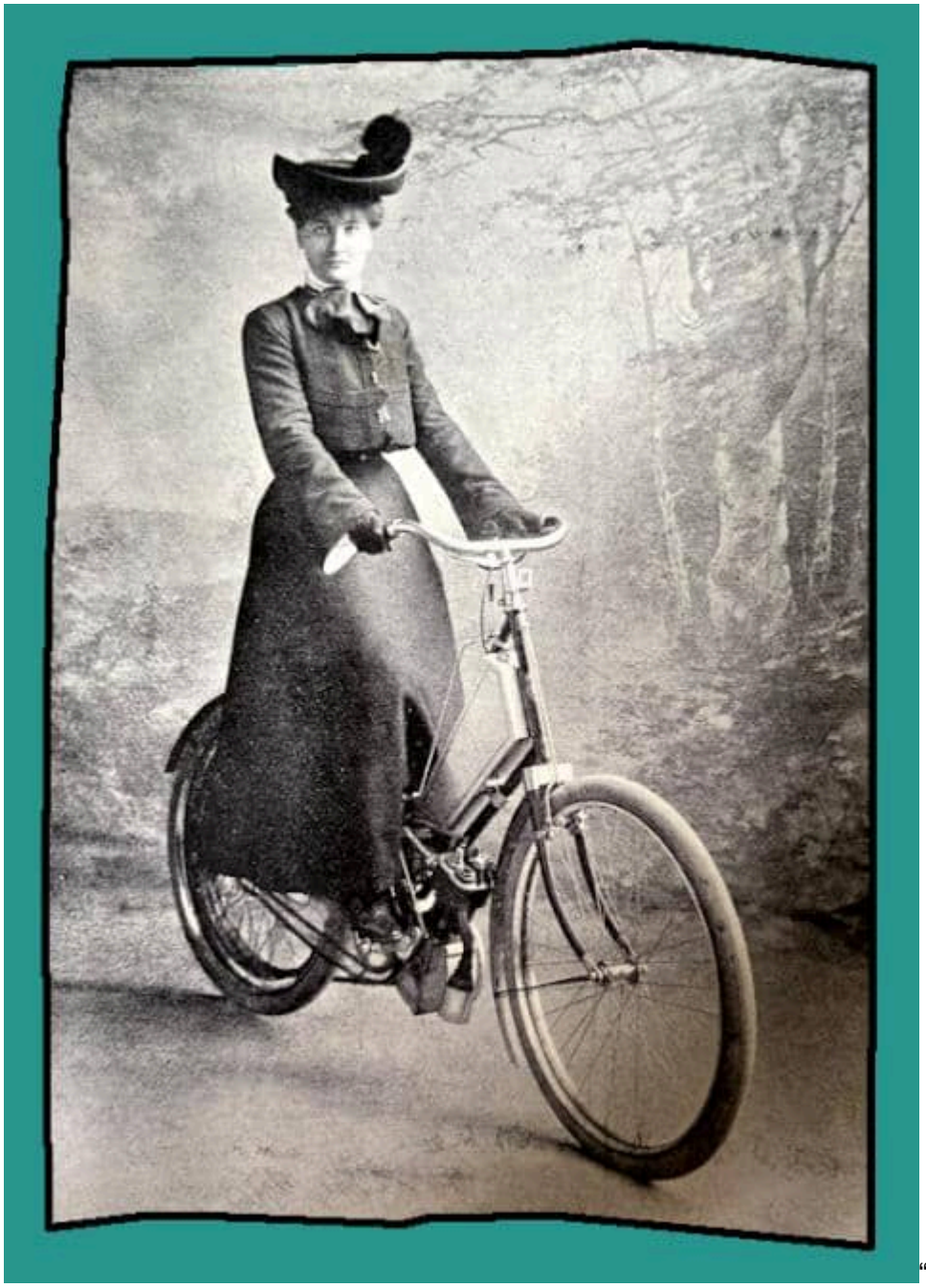


"A Motor-Bicycle for a Lady."

"SIR,—I BEG TO ENCLOSE a photograph of a Minerva motor-bicycle designed and built by the Booth Motor Co, Putney, which I venture to think you may consider worthy of production in your paper. Mrs Hulbert, my wife, has now ridden the bicycle 900 miles, her longest journey being to Bath and back, in two days, and she is constantly to be seen riding about the neighbourhood of Putney, either by herself or trailing another lady. She hopes to make good use of her bicycle this season, riding to and from her various tennis matches, thus saving time waiting for trams, etc, and she is quite of the opinion that ere long the mode of progress will become most popular among members of the fair sex. Shall be pleased to send further details if you so desire.
F Hulbert., Putney.
[Although we publish Mr. Hulbert's letter, we hardly think that the motor-bicycle is a vehicle to be generally recommended for the use of ladies.—Ed The Motor.]

"A 2hp Motor-Bicycle for lady rider, built by the Booth Motor Co, Putney. Referred to in Mr Hulbert's letter."

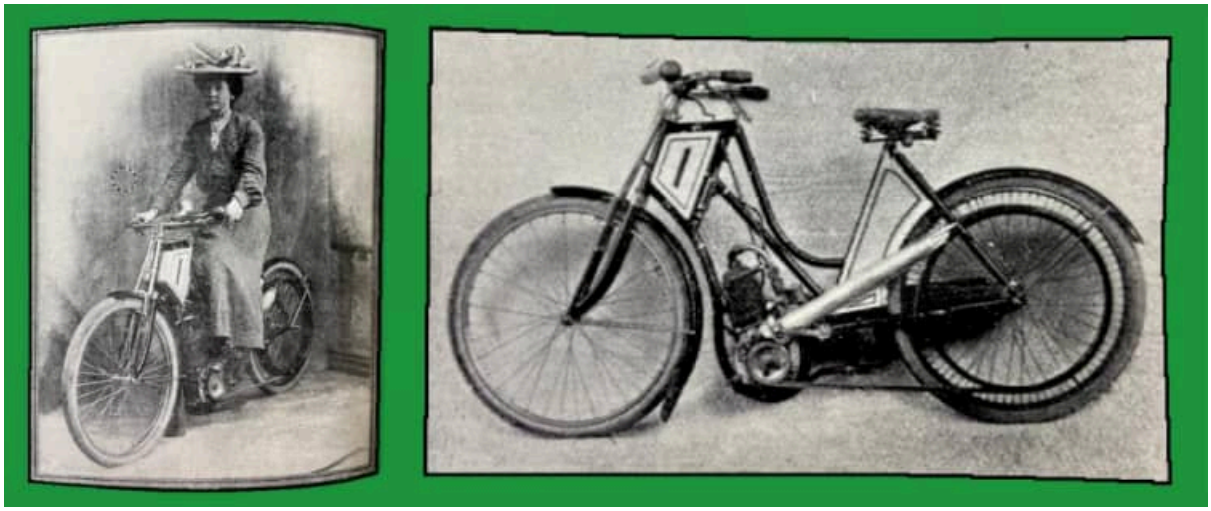
If Mrs Hulbert was irritated by the smug-gittishness of TheMotor's editor, she was no doubt molliĭed by the photo and caption that appeared in the second issue of TheMotor Cycle. You'll ĭnd more examples of the prejudice faced by pioneer women riders in the feature 'Wake Up Ladies!".



“Mrs Hulbert on her motor cycle. This lady is well known in Putney for her sporting proclivities, while her husband is celebrated in the skating world as the holder of the Diamond badge for English □ðgure skating. Both are now devoting a great deal of time to motor cycling. Mrs Hulbert has ridden her motor bicycle some hundreds of miles without a breakdown of any description, and at the present time, when lady motor cyclists are distinctly rare, her appearance always creates quite a sensation. She is very fond of motorcaring, but regards the bicycle as a more sporting and even more enjoyable pastime. Her bicycle was built by the Booth Motor Co, of Putney, and special arrangements have been made for the suitable disposal of the petrol and oil tanks, etc.”

“WE HAVE PERSISTENTLY advocated motorcycling for ladies, and are always glad to hear of a machine likely to popularise the sport among the fair sex. We herewith illustrate the Crown □ðeld lady’s motor bicycle, made by Mr James Perkins, of 299, High Road, Leyton, E. The frame is of registered design and carries the engine low down in a cradle. The forepart of the frame carries a

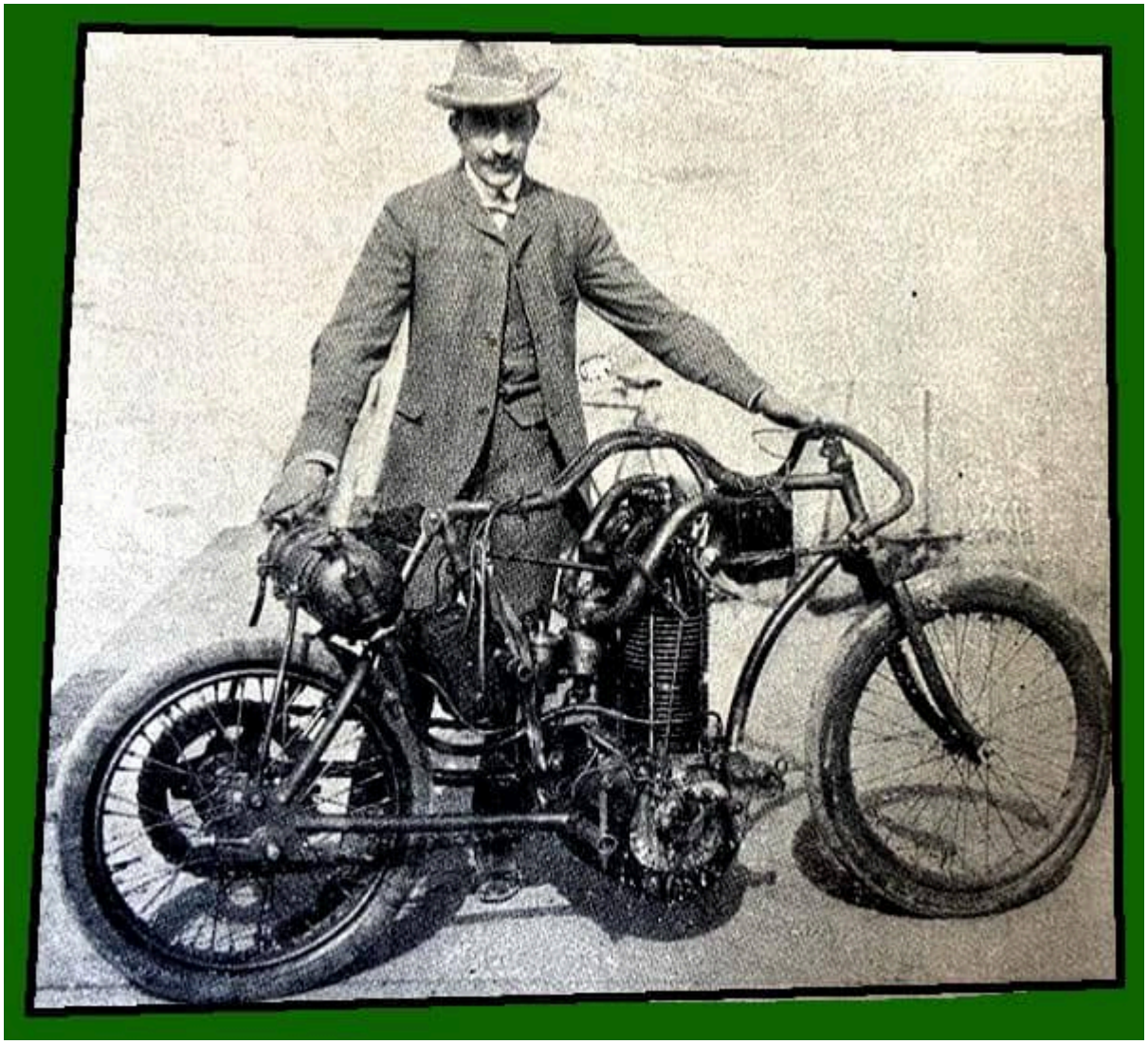
tank which holds lubricating oil and two accumulators, while to the rear of the saddle a spacious petrol tank is □ðtted. The throttle and spark advance lever are placed in a most convenient position on the top of the front tank. The engine (a 2¼ hp Kerry) is ample for the work required. The carburetter is an FN, and 28in. wheels are □ðtted to avoid vibration. In spite of this the saddle is suīiciently near the ground. We had a short run on the machine and were much pleased at the result. The control was very simple and the engine could be lain at a very slow speed."



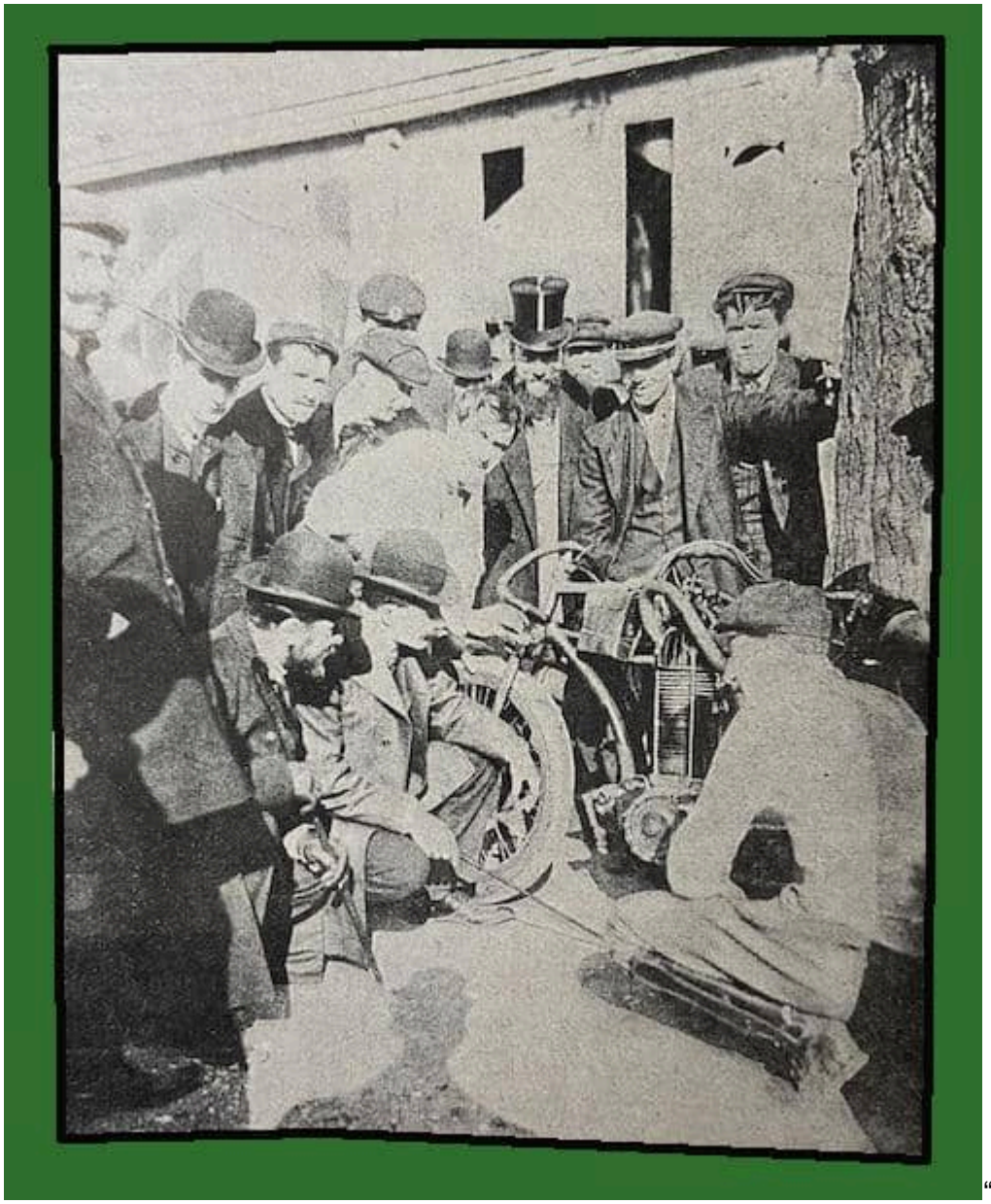
"The Crown □ðeldlady's motor bicycle, ridden by Miss Perkins."

"ON MARCH 27TH MR HW CLARK, of AW Clark and Co, of Coventry, met with an accident while passing between two electric trams near Kew Bridge, on one of the □ðrm's motor-bicycles. It seems that the tram, which was approaching him, caught the back wheel of the bicycle just as he was moving out of its way, causing the front of the machine to swing round so that the rider's face came in contact with the tram, in □ðicting a severe cut; the other tram then struck him on the back of the head, fracturing his skull. He was removed to the West London Hospital where he was immediately operated on, a portion of the skull being removed and □ðlled in with gutta percha tissue. He immediately commenced to recover. He has since felt no ill eīects from the accident, and in less than two weeks from the accident he was up, and has returned to his business."

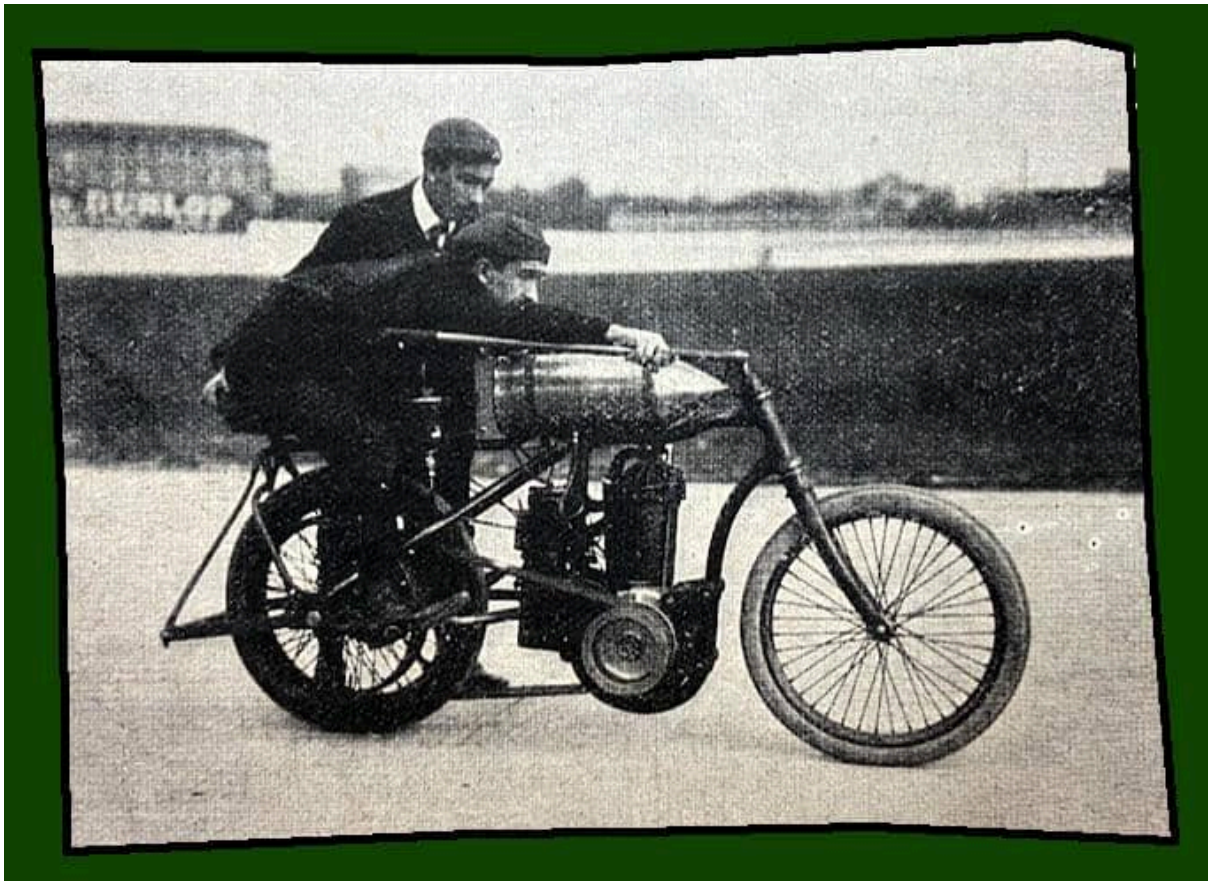
"THERE SEEMS NO REASON why a cyclist and motor-cyclist should not go on a tour together. A medium-powered machine, we should say from experience, was the most suitable. With a little practice the cyclist can hold on to the saddle of the motor-bicycle, and can thus free wheel 25 miles out of 30, and do his own pedalling up-hill. This method seems to be preferable to a tow line because the cyclist can immediately clear himself on corning into traīic. At Brighton recently we saw an ordinary cyclist hanging comfortably on to a slack belt round a motor-cyclist's waist. The two had evidently journeyed some distance—probably from London—in this way."



“Maurice Fournier and his new 22hp motor-bicycle, on which he recently defeated the hitherto invincible Marius Thé.”You might recognise this pic if you’ve looked through the 1903 features (well worth reading by the way—they helped inspire me to set up this timeline.) You’ll □ðnditin “Monstrous motor cycles”. And when most bikes were rated at around 2hp, Fournier’s 22hp mount could fairly be described as a monster.

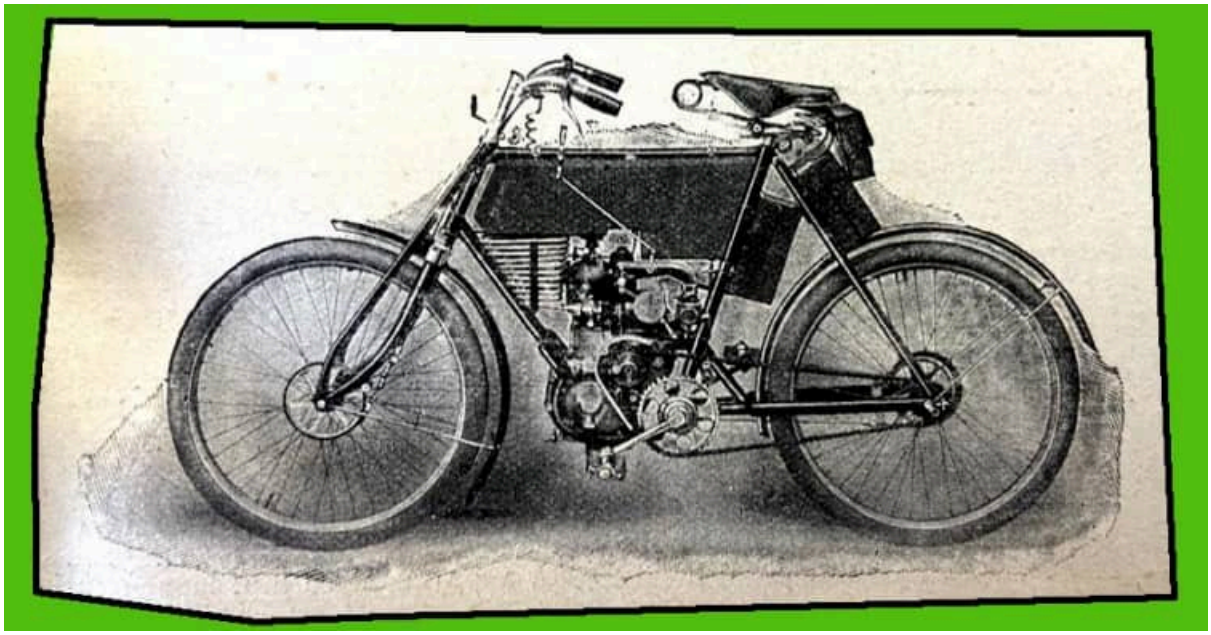


“M Serpolet evinces great interest in Maurice Fournier’s latest motor—the 22hp motor-bicycle on which he recently defeated Marius Thé.”



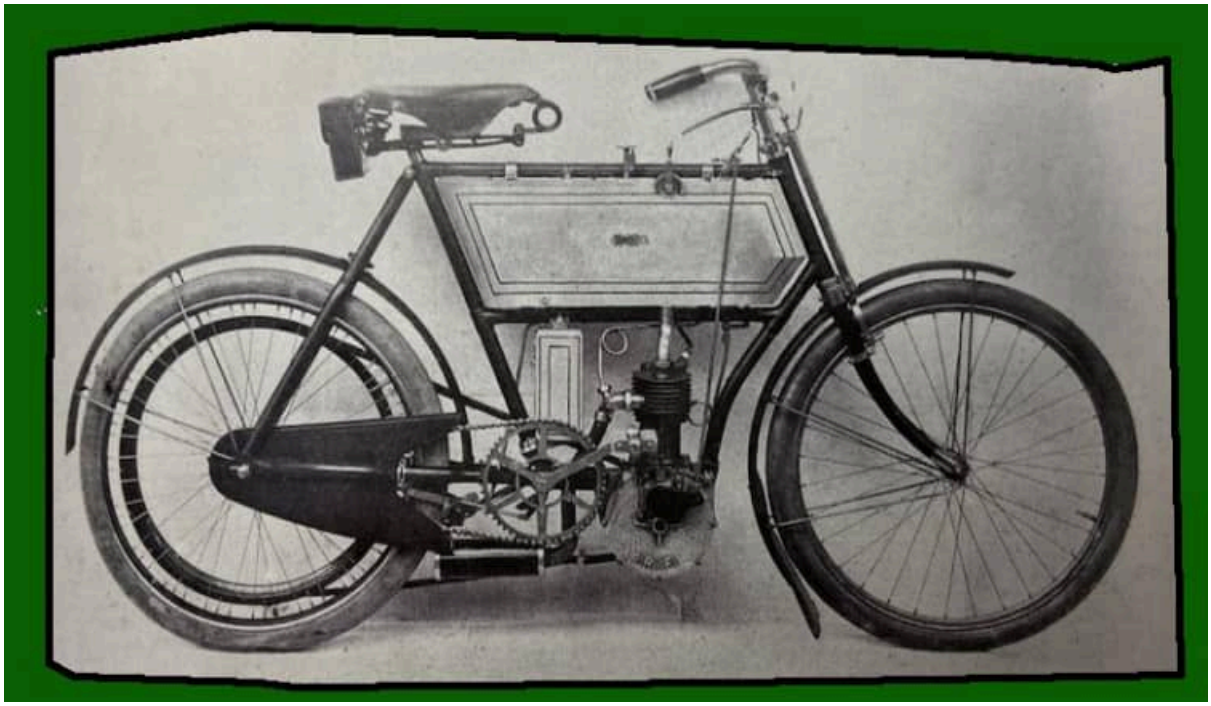
“The □ðrstriderwhohas exceeded 100km/h on a motor-bicycle—actually 112km, or 70 miles—at the Parc des Princes Track, Paris.”

“THE ENFIELDCOMPANYhaverecently introduced a new 2½hp (actual) motor-bicycle, with an interchangeable cylinder, so that either air or water cooling may be adopted. It is chain driven, but has only one chain. This runs remarkably silent and smoothly, as we proved by experience when trying one of these machines up and down the hills and dales round about Redditch. The back hub is □ðttedwithafriction cone clutch, which allows of the engine being started while on a stand or resting on the ground, an advantage over starting by the ordinary means of pedalling. The whole of the driving chain is enclosed in a gear-case, which □ðtsontheprojections shown on the aluminium crank chamber of the engine. Thereare only two levers on the machine, one to operate the throttle on the carburetter, and the other to advance or retard the ignition. The exhaust valve lifter is operated by a Bowden wire. Two brakes are □ðtted,oneaband brake on the rear hub, and the other a front rim brake, actuated by a Bowden wire from a lever on the left side of the handlebar. Severalminor improvements in the machine have been eīected. To enable the rider to more easily get at the exhaust valve and inlet valve the metal tank case has been cut in half. Thefront half is the water tank, while the other half is for petrol. To increase the capacity a special tank is also □ðttedbetweenthedown centre tube and the two back stays. A better silencer has also been added, and this is now placed just in front of the engine and behind the front mudguard.”



“The New Royal En□ðeldMotor-Bicycle.”

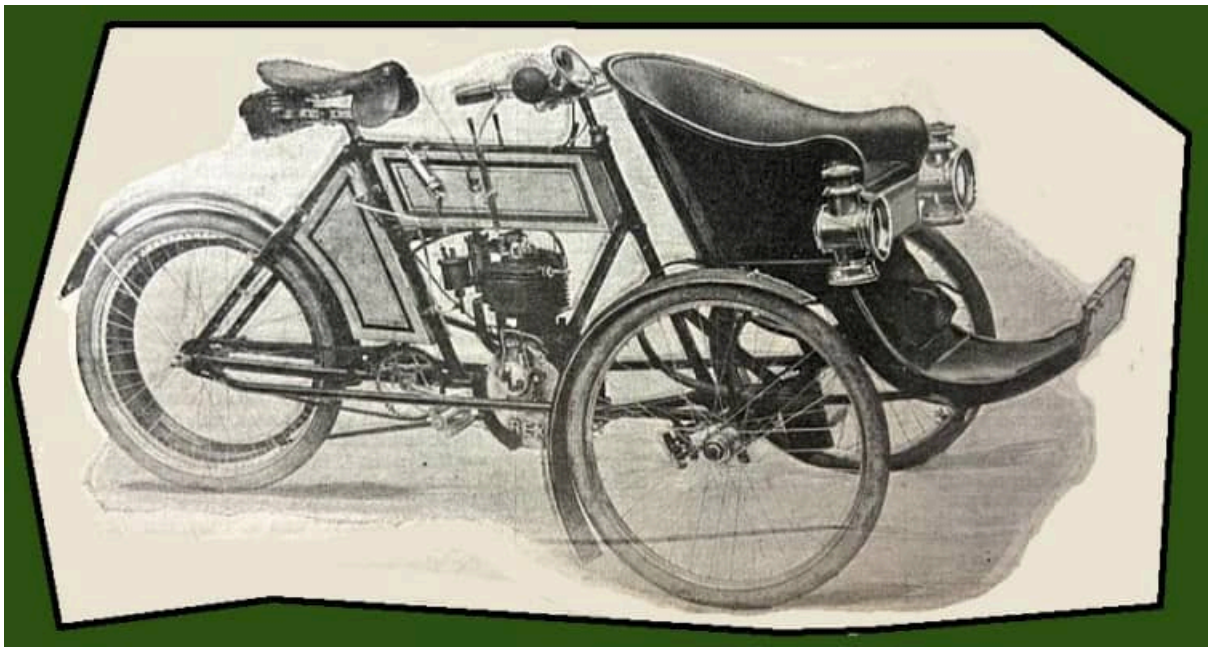
“THE ARIELCYCLECOMPANY,Bournebrook, Birmingham, have recently put a perfected model of their 2¼hpmotor-bicycle on the market. Theengineis mounted vertically, well in front of the bottom bracket, and drives by means of a three-ply V-section belt. A surface carburetter is a special feature, this having a warm air byepassfrom the exhaust. Thepetrol capacity is about equal to 120 miles. Theignition is by trembler coil and wipe contact, and speed is controlled by a spark-advance lever. A novel feature is a separate case, in which the accumulators □ðt.Thisis supported on a bracket clipped to the diagonal. Thesilencer is claimed to be specially eīective and is brought well down to the base of the machine. Two rim brakes are □ðttedandalsoa chain guard. Theprice complete is £50 with Dunlop tyres.”



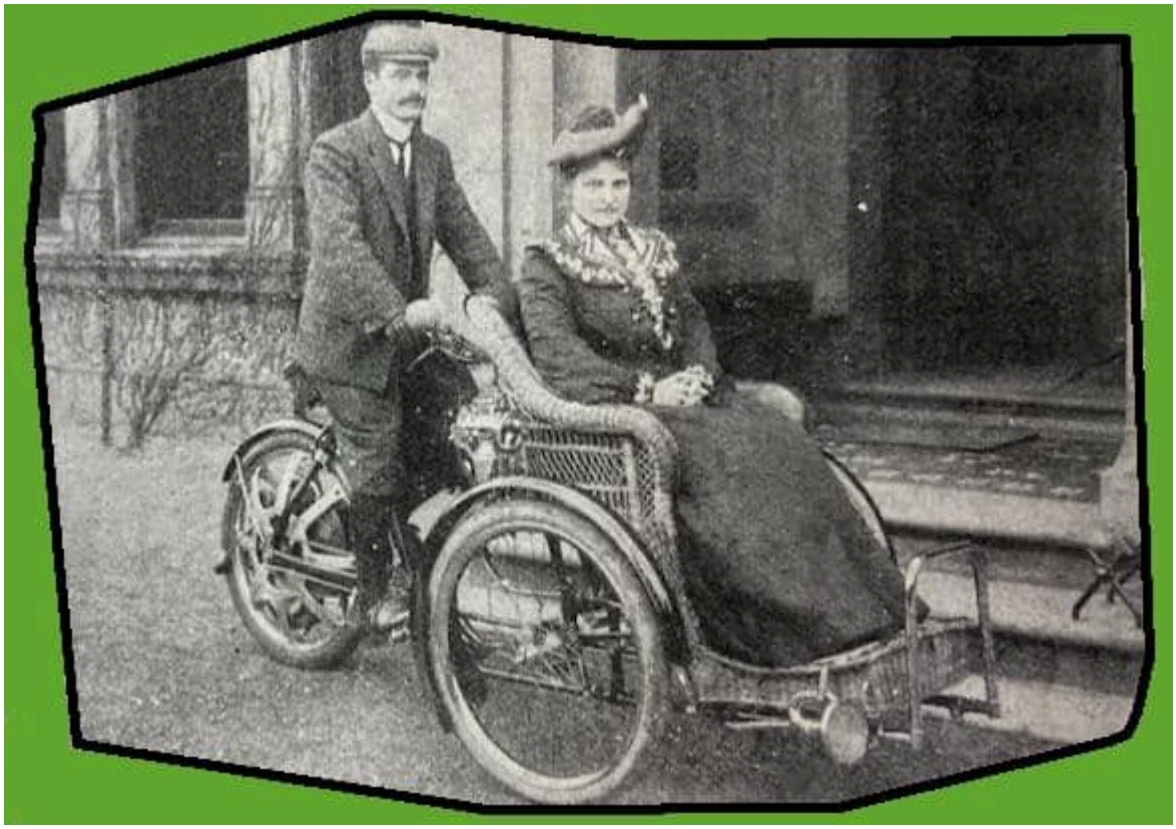
“The aboveis the latest type of motor bicycle intoduced by the Ariel Motor Co. Thewhole machine, including the engineof 2½hp, has been designed and manufactured at their factory in

Birmingham. The lubricating pump with glass barrel and oil compartment is let into the frame tank."

"A NEW FORECARRIAGE HAS just been introduced by the Rex Motor Manufacturing Co, Coventry. The Rex Company do not believe in making the carriage detachable, as they are of the opinion that but few motorists who purchase the double machine will go to the trouble of removing the bicycle, replacing the front wheel, etc, in order to obtain the single machine. They have, therefore, designed a specially light, but strong framework, which should minimise vibration as much as possible, and also allow of the whole vehicle coming out at a much lower weight than the old-fashioned 'quad' or, they claim, than the other types of forecarriages on the market. The engine is a 3½ (actual) horse power and is as simple in every respect as the Rex bicycle motor. The back wheel is strengthened both as regards the spokes and rim, and also has a heavier tyre. The front passenger is accommodated in a nicely upholstered wooden body, this being provided with a leather cover. The machine will be known as the 'Rex Tricar'."



"The New Rex 'Tricar'."



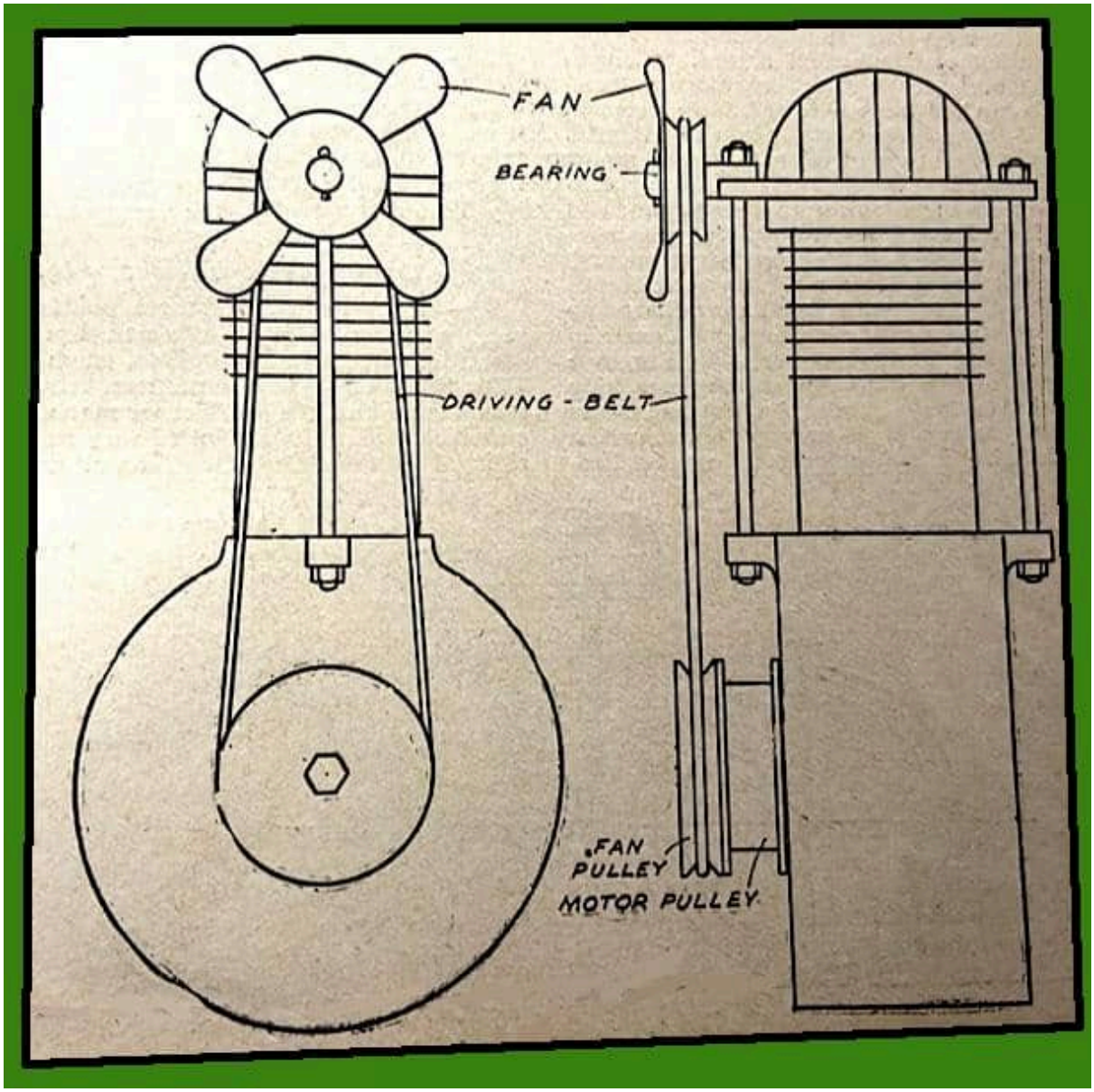
“Mr EP Chance, of Birmingham, and Miss Chance on a 2½hp Singer with a forecar attachment. Mr Chance is a gentleman well known in Birmingham, and is at present at Cambridge University. He is greatly interested in motorcycling.”

“THE EXCELLENT PROGRAMME provided by the Midland Cycling and Athletic Club at Villa Park last Saturday was greatly marred by the most unpropitious weather. Shortly after two o’clock rain began to fall steadily and the track was soon wet and treacherous. The motor-cycling events, in consequence, lost much their interest and excitement, and several riders had very nasty falls when going at 35mph, but fortunately they were only bruised. The state of the track deterred many of the men from starting; but Martin, Yates, Wright and Kennedy gave very □ðne exhibitions of driving under most risky conditions, and were much applauded for their pluck by a crowd of about 4,000 spectators. Had the weather been dry, exceptionally □ðne racing would have been witnessed, as some thirty or forty motorcycles had entered for the various events. CG Garrard had a 14hp machine geared for a speed of 90mph, but it would have been suicidal to have attempted to use it. Details: Three Miles Motor-Bicycle Handicap (Open) for engines not exceeding 2hp. One Mile Motor Bicycle Time Trials (Open Handicap), for engines not exceeding 3hp. Twenty-□ðve competitors entered for this event, which was run oī in pairs. Each had to start separately from a mark about 80 yards behind scratch, the time being taken from the moment the line was crossed. No pedalling was allowed in the actual race. This proved the most thrilling event of the meeting, two of the men coming down. Kennedy fell when travelling at about 40mph and slid nearly twenty yards, but was unhurt. Starting again, he □ðnally won in 1min 34⅘sec, with a handicap allowance of 8sec. Harry Martin did fastest time, 1min 30⅘sec from scratch, and was second. Result: 1, WWC Kennedy, MC and AC, 8sec; 2, Harry Martin, Croydon MC, scratch; 3, AE Coleman, Birmingham MCC, 6sec. Five Mile Motor-bicycle Handicap (Open). This brought out Harry Martin, Bert Yates and Sam Wright, all record holders, and on the now rapidly drying track some excellent and exciting speed work was seen. A remarkably □ðne bit of driving was witnessed in the second heat. Yates took the lower bank too high when going at a high speed,

and ran so near the boarding that he lost a a pedal, and was all but badly thrown. He recovered marvellously and stuck to it gamely, with only the left pedal to steady him, the other foot hanging. He came in for a great ovation at the □ðnishwhichwascertainly merited, as such a piece of plucky driving has rarely been seen on a racing track. Results: 1, S Wright, Excelsior CC, scratch; 2, T Tessier, Essex, 20 sec start; 3, AE Coleman, Birmingham MC, 25sec. Time, 6min 53⅕sec."

"THE FIRSTMEETINGOFthecommittee of the Auto-Cycle Club was held at the Automobile Club premises last Wednesday, the chair being occupied by Mr GF Sharp. The Automobile Club had nominated Professor Boys, the Rev A Whatton, Dr Whitehall Cooke, Messrs Edge, O'Gorman, Todd, Smith, Duncan, Pennell and Shipton as being its representatives on the General Committee of the Auto Cycle Club. To these, who thus formed the nucleus of the club, were added 17 new members, and as more names have been received the membership already exceeds thirty. To the committee were added from the body of the members Messrs Slurp, Perman, Walford, Wilson and Ilsley, and the Master of Ruthven. Mr Roger W Wallace, KC, was elected president, and the only other oīice □ðlledwasthatof hon treasurer, Mr Candler being elected to that post."

"SIR,—MANYREADERSSEEMtobetroubled with their motors getting 'tired' on hills, especially those used with trailers. If they will but try the following they will be amply rewarded, as I can vouch for, having □ðttedthearrangementto a machine of my own. I allude to a small fan on side of combustion head, driven oī a small V-pulley bolted to the motor pulley. Most practical amateurs could carry out the alteration. In any case it will cost but a very few shillings. I send a rough sketch of my own arrangement for a vertical engine, which will explain itself.
'Amateur'."

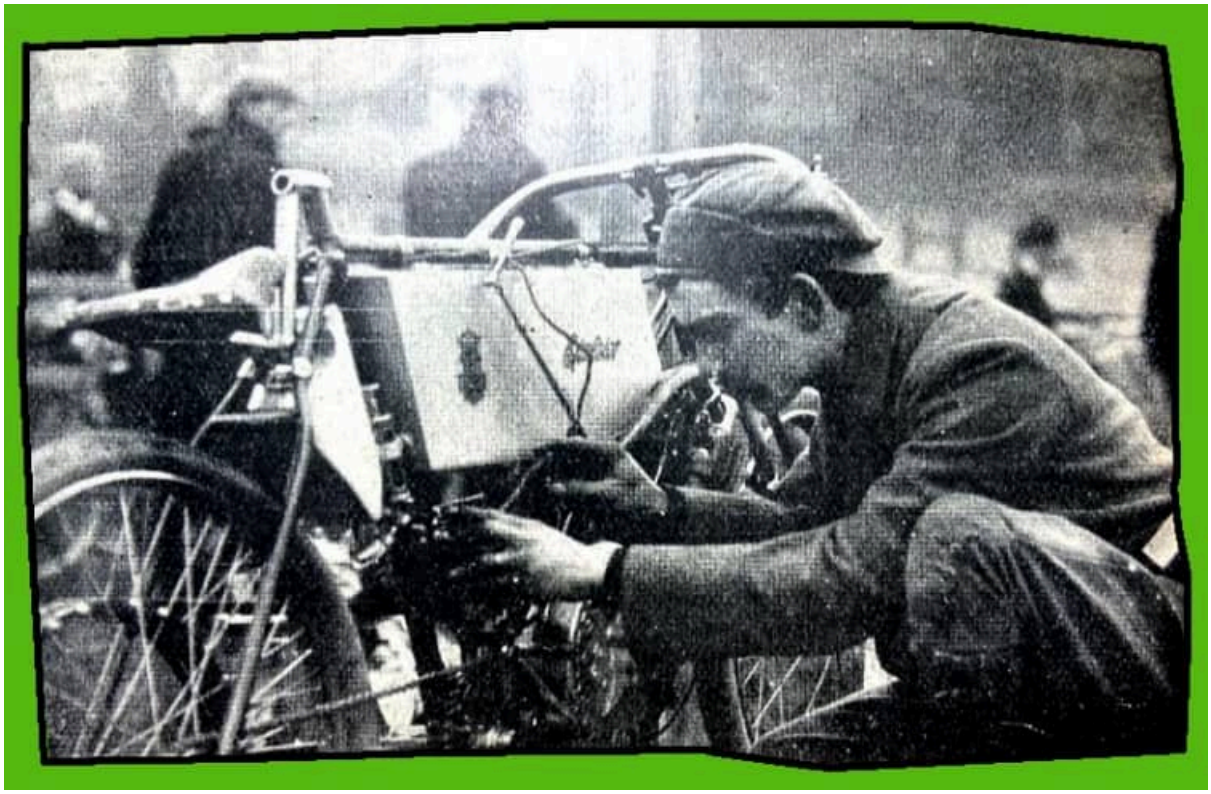


"Illustrating letter from 'Amateur'."[Theidea caught on; our colonial cousins ĭt them to their Harleys and call them parade fans—Ed.]

"WE HADARRANGEDWITHourIrish correspondent for a report and photographs of the Motorcycle Union Hill Climb at Glenamuck, and the following reaches us just as we close for press: 'A very large number of motorcyclists were entered for the climb, and were present at Glenamuck Hill this afternoon, but after four pair of competitors had gone up the police arrived on the scene and commenced operations with their notebooks. Theytook the names of several competitors, so a committee meeting of the Motorcycle Union was held and the trials declared abandoned.'"

“Start for the ThreeMiles Handicap at Aston Lower Grounds last Saturday: Yates, Cook and Humphreys.”

WWC Kennedy, winner of the One Mile Time Trial at Aston."



“H Martin ‘tuning up’ before racing at the Aston Lower Grounds last Saturday.”

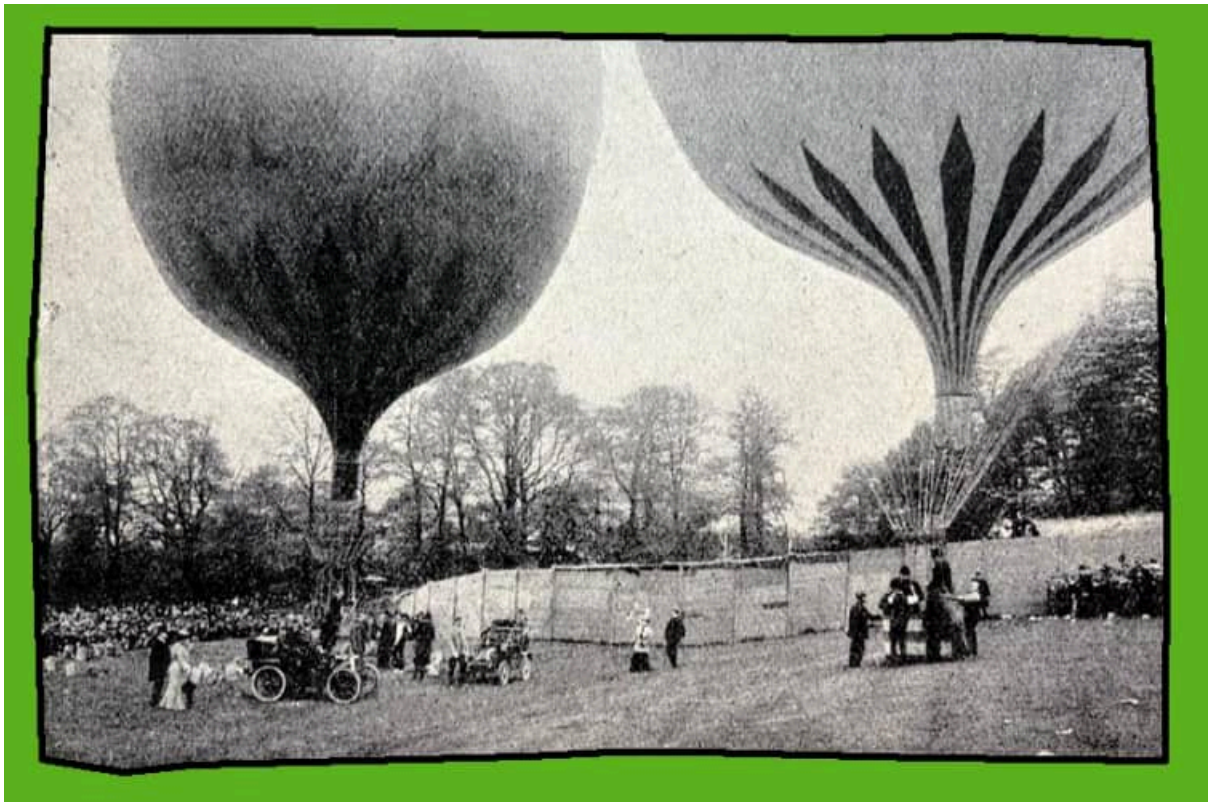
“THE LATESTVICE:MOTORDRUNKENNESS.Thedistinguished French physicist Monsieur M Hachet Sonplet gavea lecture recently before the Paris Society of Hypnotism and Psychologyin which he dealt with the extraordinaryintoxicating eīect of high-speed motoring. He says the moral and mental state of the driver becomes abnormal; thus he becomes aggressive, vindictive, and, like the habitual alcoholist, quite regardlessof what the consequences may be. Dr Bertillon said that police court trials were quoted which went to provethat gentlemen of education and entire self-control became as mad as dancing dervishes once the speed takes eīect. The □ðyinglandscapeproduces a wild and dangerous intoxication, under which in□ðuence the driver would run down those nearest and dearest to him.”

“The Latest Vice: Motor Drunkenness. A French physicist recently lectured on the intoxication of motoring, alleging that the moral and mental state of drivers become abnormal, and they become aggressive, vindictive, and as mad as dancing dervishes once the speed takes eīect.”

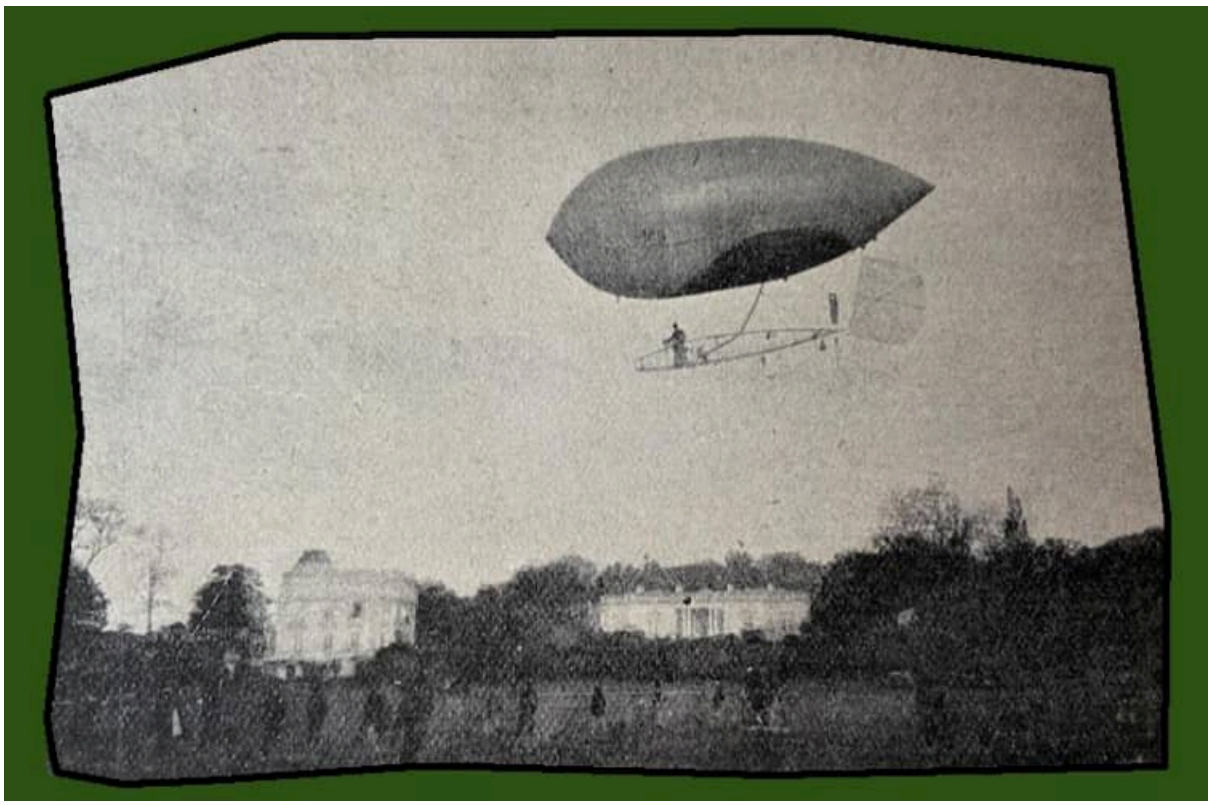
“A BAD MOTOR CAR ACCIDENT happened at Kingston Hill early on Saturday morning. The car was occupied by Lord Alan Percy, the Hon. Ponsonby Myers and Major Russell, and the driver. Near the bottom of Kingston Hill a carrier’s cart emerged from a side road, and the driver applied the brakes suddenly, when both rear tyres collapsed, with the result that the car got out of control and dashed back □ðrstintothewindow of a draper’s shop. All the occupants, with the exception of the driver, were more or less seriously hurt, the Hon Ponsonby Myers being detained at a house near by and attended by a local doctor. While the wreckage was being cleared away from the shop the King drove past on his motor-car, and stopped to view the proceedings and enquire after the injured gentlemen. The, latest reports are that all are doing well.”

"The Motor Car Smash at Kingston. The scene of the accident, in which Lord Alan Percy and Mr CM Ponsonby were badly hurt."

"ON SATURDAY LAST (9TH INSTANT) two balloons left the Crystal Palace at 2.30pm, this being the fourth ascent this season out of a series of twenty to be carried out by the Aero Club. The two balloons, each of 45,000 cubic feet and constructed by Messrs. Spencer and Sons, were the Graphic, with Mr Frank Butler in command, and Messrs CF Mead and Micklethwait as passengers, and the Aero Club No 2, with Mr CF Pollock in command, and Messrs Leslie Bucknal and Myers as passengers. Within the balloon enclosure were Mr Boger Fuller, with his 6hp De Dion car, and Mr Huntingdon, with his 7hp Panhard car, ready to give chase after the balloonists. Other cars and motorcycles were expected to take up the chase from outside the Palace grounds. After Mr Percival Spencer had superintended the in□ðation and other necessary details connected with the balloons, and seen the amateur aeronauts and their friends comfortably on board, he gave the word to let go, and both balloons rose steadily away from the cheering crowd, a light south-west wind carrying them away in the direction of Woolwich. The Panhard car was soon in pursuit, but had some diīiculty in getting through the ring of spectators. The Graphic rose to a greater height than the Aero Club No1, which is a new balloon, this being its second trip. The Aero Club, however, seemed to □ðnd a faster current of air, for it gained steadily on its companion. As only a light air was moving no anchors were taken, but each carried the now usual long trail rope, which is so useful in steadying the balloon in the descent. We learn from Mr Spencer that he has a new airship on the stocks with an engine of much higher power than that which propelled his successful Mellin's No1 airship of last year. Result: The balloon was lost to view in the thunder clouds and eventually evaded capture not more than three miles away from the Palace Grounds."



"The scene at the Crystal Palace last Saturday, on the occasion of the second meeting of the Aero Club. Star for the Balloon vs Automobile Chase."



"The Santos Dumont Air Ship hovering over the Bois de Boulogne during the recent successful manoeuvres."

“SIR,—LASTYEARWHENtakingmy motor-tricycle between Cowes and Southampton I was rather surprised to □ndthatwhilstmy own ticket was only 1s 6d return, my motor-tricycle ticket was 10s, and pier dues 2s. On writing to the manager of the RoyalMail Steam Packet Company, I received a most courteous letter in reply, and after some correspondence with him I have received the accompanying letter: ‘Sir,—Referringto your letter dated January19th, respecting the chargesfor motor-bicycles, etc between the mainland and the Isle of Wight, I beg to say this matter was brought before the members of the Traïic Conference recently, and the following rates will now be charged: Motor-bicycles, Cowes to Southampton, or vice versa, 1s; motor-tricycles, ditto, 2s 6d; with an additional 1s for a trailer.—Yoursfaithfully, LTWilkins, Manager.’I think you will agree with me that the charges mentioned are most reasonable when you remember that the steamers are only intended for passengersand their personal luggage.I should recommend motorists coming to ‘the Island’ to choose this route, as the approaches to the boats, both at Cowes and Southampton, are good, there being no steps to negotiate. There were a great number of motors in the Island at Easter,and no prosecutions either for exceeding the legal limit or for furious driving. Unless I am wrongly informed, the Standing Joint Committee have given most wise and judicious directions to the Island police, so that motorists here are only prosecuted under the old Highway Act. If this good example were more generally followed, much of the bitter feeling and indignation now aroused would be done away with. Therewould be no more necessity for hiding police in hedges,for measured miles, and stop-watch timing, and there would be no more of the ridiculous prosecutions under the Light Locomotives Act, in which the magistrates, if satis□ðedthatthelaw has been infringed, feel compelled to convict. TheIsland is an excellent place for about a week’s tour. There are over 300 miles of pleasant roads, and many places of interest; but it is no place for scorchers, as the roads, though generally good, are mostly narrow.

H EldridgeStratton, Newport, IoW.”

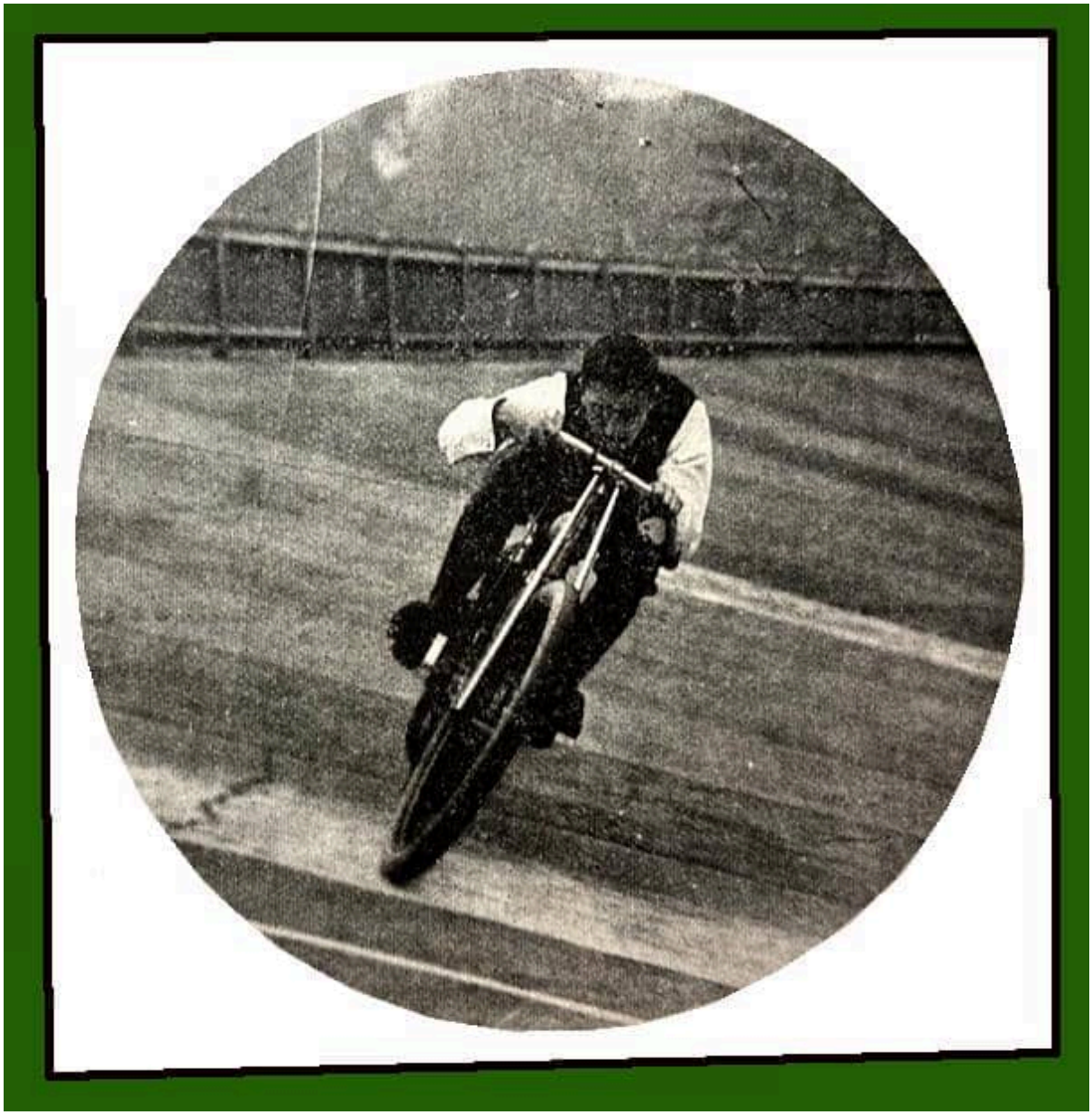
Today(2023)a Southampton-Cowes return, including the rider, costs £55 for anything from a moped to a V8 trike. Allowing for in□ðationMrStratton paid £103.50—but following that courteous correspondence, the RoyalMail Steam Packet Company reduced the trike/combo fare to £46.50; the solo rate plummeted to £35.—Ed.

“SIR,—IN VIEWOF THEINTERESTarousedby the use of chemicals to increase the explosive force of petrol, perhaps a few particulars of the properties of picric acid—most generallyused—may be interesting. Picric acid is generallysaid to explode by heating, but this takes place only when very small quantities are heated very rapidly. If heated in any quantity it melts and vaporises, and will burn with a luminous □ðame,butwithout explosion. Under ordinary conditions, picric acid will not explode either by percussion or heat, unless, as aforesaid, minute quantities are suddenly heated. Thepicrates, on the other hand, are readily exploded by heat or percussion. Picric acid in masses, obtained by compression, and mixed with gum arabic solution, or suitable fat or oil, or 3-5% of collodion, can be exploded in closed vessels. Fused picric acid cannot be exploded in the open air by detonation with three grains of fulminate of mercury, although, if melted and cooled slowly in closed vessels, it can be readily detonated, the explosion being one of the most destructive known. ‘Melinite’, one of the most powerful explosivesinvented, is said to consist solely of compressed picric acid. Reits eïect in cylinders of motor. We have tried various solutions and mixtures, and succeeded in making a solution, using a percentage of acid and four other ingredients, that caused an explosion of such intense power that with a retarded spark, or incorrect air supply, we succeeded in running a motor at 25% more revolutions per minute than the best hitherto attainable with the spark fully advanced and using ordinary petrol. In fact, we simply dare not advance or give a correct amount of air.

Had we done so, it is doubtful if this would have been written. Upon examining the cylinder, we found a very soft, dry carbonaceous deposit, denoting incomplete combustion. This we attributed to the insuïicient air supply. Our experiments lead us to believe that we shall soon be in a position to place upon the market an acceleration oil, which will both drive and lubricate the engine, and at the same time add considerably to its power. During our experiments with this mixture we have not had a single case of over-heating or mis□ðring. One method of using picric acid is to put a quantity into a vessel with petrol, and allow the spirit to ab-sorb as much as possible. The product must be very carefully strained (after standing two or three hours), and then, for economy's sake, a small quantity of paraïin may be added. This experiment will not be successful with surface carburetters.
Jas L Norton.

"DEAR SIR,—TO SHOW HOW very simple and easy it Is to take up the motor cycle, my experience may be of interest. I suddenly got the 'Fever' during the last day of the last motor show, and I spent the afternoon at the Agricultural Hall examining machines. During the next week I obtained every paper and book on the subject, but it was not until the Thursday before Easter that I dared to try a machine. Twice round Hyde Park on a 2¼hp 'Kerry' convinced me that there was nothing better, so without waiting for my enthusiasm to cool, I bought the machine and took it home by train. Though I had only ridden it □ðve miles, I did not fear to set out for Stratford-on-Avon, which I reached in splendid time with only one mistake, which resulted in the piston sticking, as in the delight of rushing along I had forgotten to oil during 30 miles. In the three days I covered 238 miles, and on the Sunday covered 95 miles most comfortably, riding from Oxford home in two-and-a-half hours.
Fred Duncan Hindley.

"NEARLY 49 MILES IN THE HOUR. Following up his record breaking form of the previous Saturday, GA Barnes, mounted on the same 2¾hp 'Bat', made a most successful onslaught on the hour motorcycle record, from a standing start, on Wednesday last. Despite the fact that a cold, blustering nor'-wester prevailed throughout the ride he managed nevertheless to compile the □ðne total of 48 miles 1,395 yards within 60 minutes. Getting away to a good start, he started with record at the □ðrst mile, beating his own previous best by 1⅕sec. From that point to 27 miles inclusive he was outside his own record, but from 28 miles to the □ðnish he chipped large pieces oï Freddy Chase's previous □ðgures. At this stage he was 3min 27⅘sec inside record and this was well maintained to the end, when Barnes did nearly four miles better than the previous record. In the half hour he rode 24½ miles, and he 'shut oï steam' at the 49th mile, but would have completed the 50 only for the interference of some unauthorised busybody, who signalled him to stop."

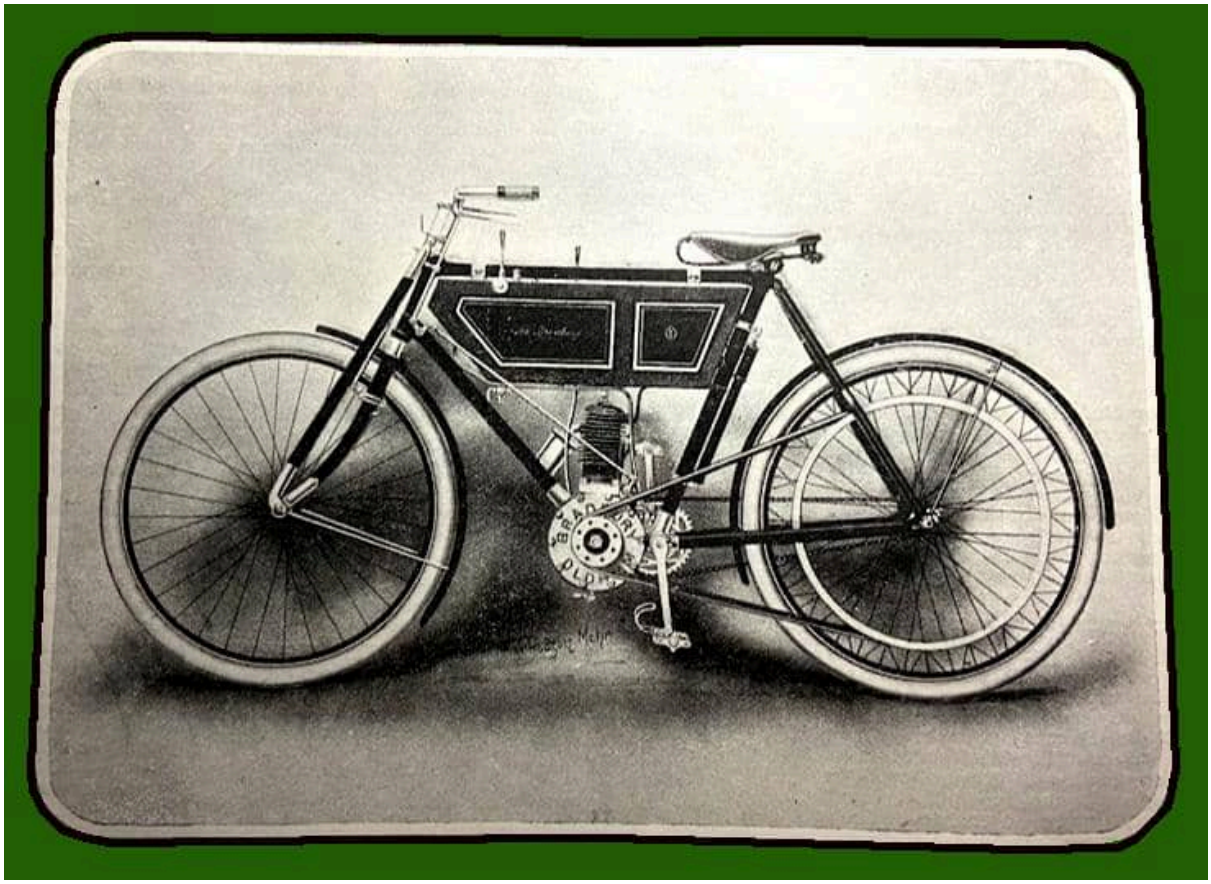


"GA Barnes riding 49 miles in the hour at Canning Town Track on Wednesday last. He rode a Bat."

"THE HUMBER CYCLE DEPOT in Reading was recently the scene of much excitement, owing to a □ðrewhich was caused, it is stated, by an employee having □ðlled a kettle with petrol, thinking it was water, and placing it over a gas bracket to boil. The vapour became ignited, and huge volumes of smoke poured forth in all directions. The □ðre brigade was soon on the spot, and, with the aid of a smoke helmet, an engineer of the force was enabled to locate the □ðre, and the hose was played upon the seat of the, damage."

"THE BRENTFORD MAGISTRATES recently □ðned the driver of a dog-cart £5 for striking Major Sellars of the 4th Dragoon Guards across the face with a whip. Defendant was driving on the wrong side of the road and refused to move when the motor came along. When remonstrated with he raised his whip and struck Major Sellars. The Bench considered it a very bad case and imposed the full penalty."

“THE HANDSOME‘PEERLESS’MOTORBICYCLEismade by Bradbury and Co.Oldham, Lancs. This □ðrmhaveasplendidly equipped factory, and have earned a well-deserved reputation for the accuracy and □ðnishoftheirlight engineering work. In the ‘Peerless’ motor-bicycle the motor forms an integral part of the frame, the crank case being brazed by lugs to the main tubes. Either a 2 or 2½hp motor can be supplied. Thewheel base is an extra long one, and duplex front forks are a special feature. Either a surface or a spray carburetter can be had at option. Ignition is by means of a Basseè& Michel trembler coil, and special type of roller contact on the motor. The cylinder and head are in one piece. Thetank for the petrol has a capacity of □ðvequarts,and there is lubricating oil capacity for 300 to 400 miles. A novel form of switch and exhaust valve lifter is a special feature. Thegearing of the 2hp machine is 5 to I, and the 2½hp 4½ to 1. The transmission is by a Lincona belt, and the tyres are Clincher A Won motorcycle type. The □ðnish of the machine is the best possible, and the prices are £45 and £50 for the 2 and 2½hp respectively.”



“The ‘Peerless’ Motor Bicycle is made by Bradbury and Co, of Oldham.” This example sports the surface carb option.

“THE AUSTRIANMILITARYauthoritiesare convinced that for campaigning in a civilised country the motor-bicycle will play an important part in the future, and orders have been placed for 20 machines to commence with. Thesewill be used in trials connected with despatch carrying, scouting, inspection of posts, etc. If the experiments are successful, the number of machines will be largely extended.”

“THEREWASA LETTERinTheTimes of May 18th from the mother of a boy who was killed whilst motor-bicycling. He was knocked oī his machine by a motor car, which also ran over him. It appears that a considerable number of letters had been written to the mother, under the

mistaken idea that the accident was attributable to the motor-bicycle. She writes in reply that her son was a clever and safe rider, most careful and thoroughly to be trusted, and it would have been the last thing he would have wished that any carelessness or want of control of his machine should result in damaging the reputation of the motor-bicycle in general."

"A DECIDEDLY NOVEL MACHINE has just been placed on the market by Evart-Hall, Long Acre, London. It is propelled by a four-cylinder engine, with chain transmission. The engine is started by pushing a foot lever, the rider then takes his seat and raises a clutch lever, when the machine starts away, the rider placing his feet on the rests. The seat is a comfortably upholstered spring bucket seat, and placed very low down, so that the feet are always within easy distance of the ground. The makers claim it has unlimited hill climbing powers, and is capable of running up to 50mph The price, complete, with 2¼in tyres, is £70."

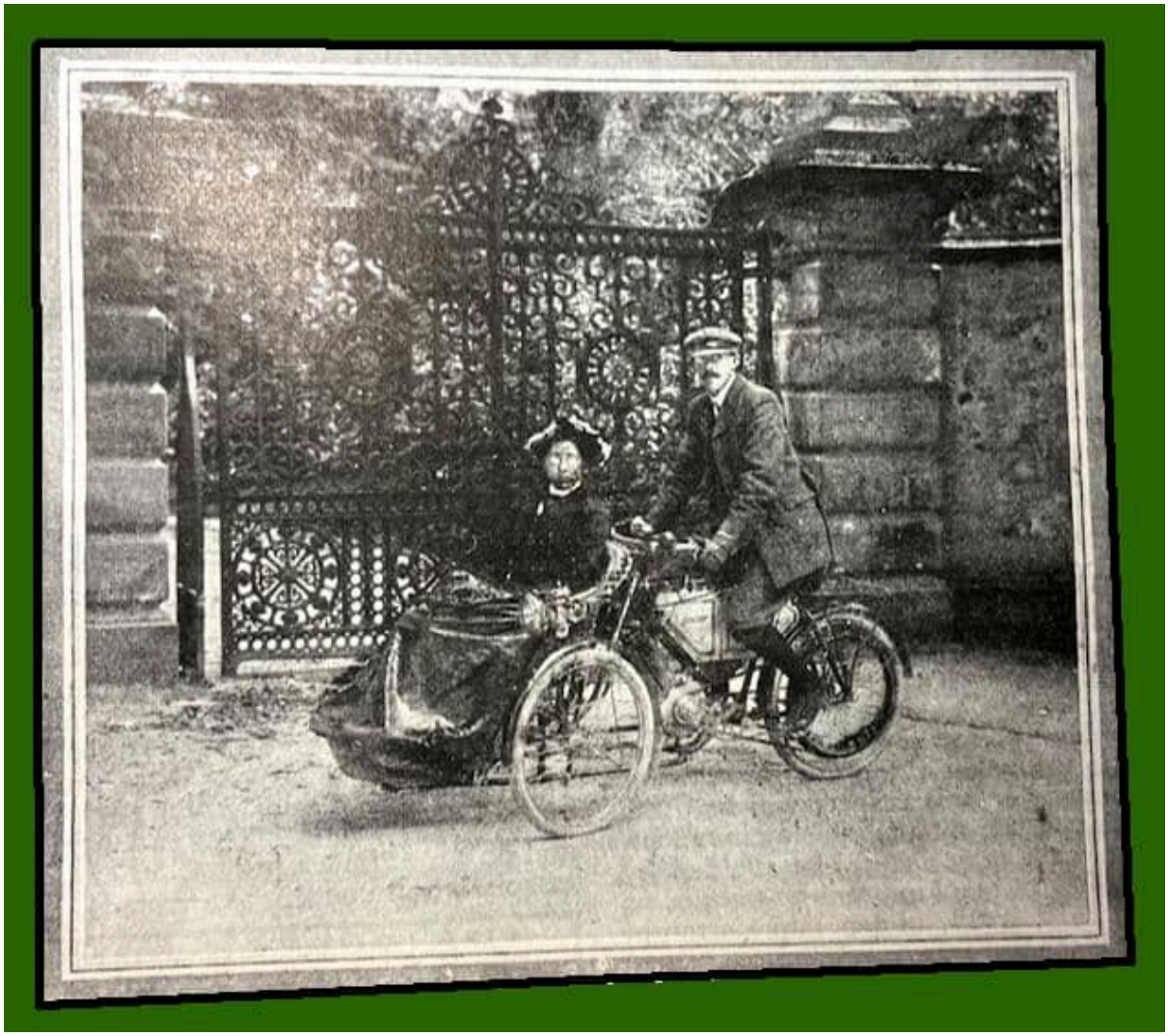
"The Evart-Hall Two-wheeled Car." Note the comfy seat, the girder forks—and a kickstart.

THE FORECARRIAGE, AND HOW TO DRIVE IT.

By B. H. DAVIES.

HERE'S A RARE TREAT—what I believe to be the debut article from BH Davies, a young priest with a passion for motor cycles. This appeared in* The Motor *but within a few months he would be writing for* The Motor Cycle *as Ixion, the greatest motor cycle journalist of all time. "The forecarriage is a new arrival, and though they are coming out in shoals with the □ðne weather, few of us have yet had much experience of them. Even the makers have scarcely had time to give the invention that 'gruelling' on rough roads which brings out the weak points of a machine; and the natural result is that some early purchasers may at □ðrst be somewhat dissatis□ðed. The writer has driven a good distance over very bad roads on a high-priced machine; and were he placing an order for a motorcycle and forecarriage to-morrow, several considerable alterations would be made in the speci□ðcation. Every forecarriage that has passed through my hands up to date has been attached to the bicycle (i) at the fork-ends (for steer-ing); (ii) just below the ball head; (iii) either to front tube by a second clip below (ii), or to bottom

bracket, or to lower front tube of diamond, or to lower back forks. The steering attachment is the same on all machines, and (ii) also oīers no material diīerence in the various types. It is the third attachment that is vital. In one well-known pattern two long tubes run from the forecar to a point near the steps on back forks; and this forms an exceptionally rigid connection. Such makers as did not care to take a license for this idea have been compelled to think for themselves; and many have run two tubes, gradually uniting into a single connection to the diamond frame or bottom bracket. In my humble opinion, this attachment is not safe. On my second ride, when driving downhill at 18mph, the whole forecar twisted bodily round, owing to this single clip shifting, and a nasty accident would inevitably have resulted had not the road been wide and free from traīic. In the work. shop we tried leather packings, iron washers, and big wrenches, but the clip could not be made secure enough to withstand our tests. It could always be shifted by a violent wrench, even with the engine idle, a smooth surface, and an empty chair; so oī it came, and a new clip was forged, making a double connection with three strong cross-bolts through. This embraces both the main down tube and also the front lower tube of the diamond, and no power can shift it; nothing short of actual breakage can occur at this place. The next point is that all vital nuts should be secured by a stout split pin passing through a hole drilled in the bolt end. This is absolutely necessary in the case of the nuts securing the two steering axles. Lock nuts are not suīicient; and the driver can see the split pins from the saddle, and rest assured that his fair passenger is safe. Brakes are a detail in which most manufacturers are conscientious. Two band brakes on the front wheels are essential. The compression on my machine will support 14 stone on the pedal, but with four hundredweight going down a long hill, compression is soon overcome. A good brake on the back wheel will always be required. My Bowden wire snapped after 200 miles, and a second one is chafed nearly through. A □ðrst-class band brake applied by steel rods is, in my opinion, more suitable.

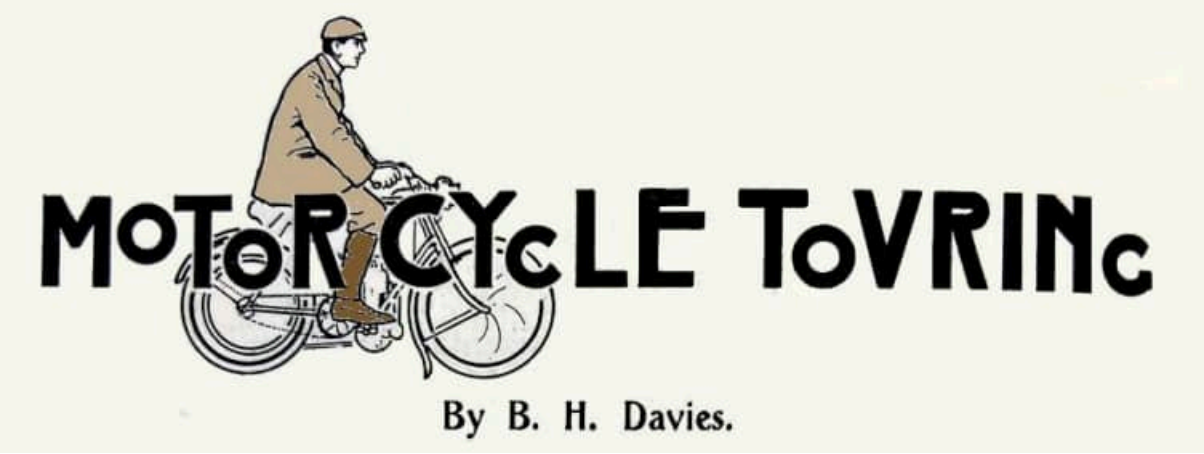


“The Author with his Machine and Attachment.” [I wonder how Mrs Davies felt about being described as an “attachment?”—Ed]

Ease of adjustment is a point to provide for. My Bowden brake was originally minus the usual tightening screw, and a large workshop could not produce a spanner that could each those on the two front band brakes. The greatest weakness of the machine is still to be mentioned. The back wheel of the ordinary motor-bicycle is not constructed to take the additional strain; 300 miles were enough to buckle the rim and to cause the collapse of several spokes in the machine under notice. A very large hub and specially stout spokes should be □ðtted. Inspite of these seeming complaints, the motor-bicycle and forecar constitute a most simple and fascinating vehicle for two persons. With a 2¾hp engine, an average speed of 20mph can be maintained on ordinary roads. The front passenger notices no odour from the exhaust, and suīers from no dust, except with a head wind; while conversation is easy, and comfort considerable. The forecarriage has come to stay, and has rung another stroke in the knell of the fast disappearing quad. With reasonable skill the engine will never overheat, and moderate gradients of two or more miles may be surmounted at a good pace. The engine should be given □ðoodsofoil; my 2¾hp MMC De Dion in hilly countries uses a charge every 12 miles without sooting. The throttle should be used unsparingly. On the level, one-third gas will drive the motor at 20mph with the sparking well advanced. Steep hills must always be rushed. and hence a steep road in a town under police surveillance is a sad nuisance. Always throttle the gas if the gradient eases for a few yards, as strict economy in this respect will help the machine up many a long slope. If the

engine slows perceptibly on a steep stretch, a walk may usually be avoided by jumping down and steering the machine and passenger as you run; but with room for a rush, and a fairly, straight road, a 2¾hp engine will take two up any hill ornamented with the CTC. caution board. To expect an air-cooled engine to trot two passengers up a 'danger' hill is a little too exacting. The tip is to drop the passenger, sail up up yourself, and wait at the top, thus cooling the cylinder and enjoying a cigarette. Go easy round the corners. If you stand on the inside pedal and the passenger leans over, you can swing round at a rare speed. But remember your front axles are only □ðnger-thick, though of hardened steel. For night driving two lamps are needed, and one should be gas. I use a Perfecta Motor type which gives a magni□ðcent light, but requires an additional spring to withstand the vibration, unless the bracket is on the C-spring portion. If you haven never driven any motor vehicle wider than a bicycle, remember you now need a good slice of the road, and beware of the restive horse. Handlebar control is most desirable. Have a Bowden exhaust lifter on the right grip, and a quick switch-oī on the other. Man has only two hands: there are two brakes, a horn and three levers, and less room to manoeuvre than with a bicycle. So I have □ðttedtothe left grip a tiny rocking lever switch which responds to the merest touch. The steering is mastered in ten minutes, and actually does not tire the arms so much as a motor-bicycle, for there is no balancing to be done. Foot rests can easily be □ðttedtothe front connecting rods, and the driver's position, being variable, is quite comfortable, but oh! so dusty. Don't expect to go 200 miles on a gallon of spirit, and if you want a ride solus, allow two hours for the job of con-version to a single. You can beat most cars on the level and on an ordinary hill. You can go 85 miles to the gallon of spirit, and you'll make friends, if you're short of them."

…and here it is, BH Davies, before adopting his nom de plume, making his debut in* The Motor Cycle*, which would be his literary home for the next 60 years. Enjoy!



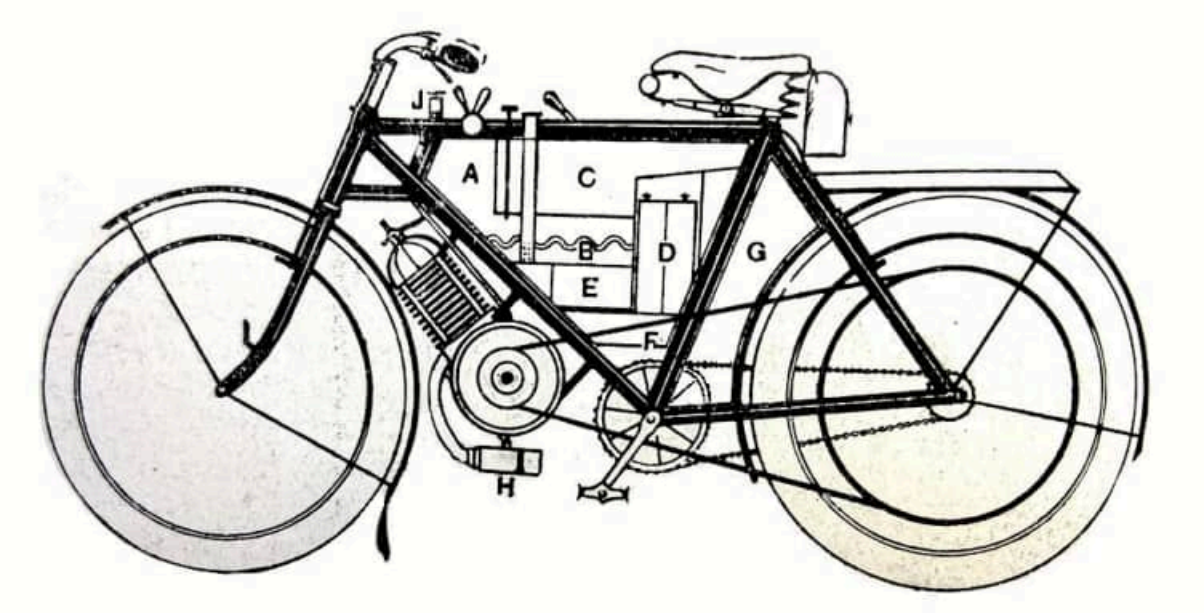
"THOUGH A GOOD MOTOR BICYCLE, kept thoroughly in tune, is always ready to start out of the shed at a moment's notice, it is, par excellence, a touring vehicle. It is not so much an economiser of time or exertion as a means of covering a wide extent of our beautiful England in the most comfortable and healthful manner. This being so, it is remarkable how ill-designed most makes are With reference to a main essential—the certainty of being able to cover long distances without professional assistance and recourse to motor supply stores. Comfortable touring implies certain requisites: (1) Good machine, (2) good engine, (3) ample oil and petrol storage, (4) adequate electrical gear, and (5) luggage-carrying provisions. Racing machines, we may premise, are of □ðrst-rate workmanship, both as regards frame and engine; and most carry enough lubricating oil for several hundred miles. But here their suitability for touring ceases abruptly. It is hard to □ðnd a machine that, while satisfactory in these points, also carries plenty

of petrol and aīords room for luggage, spare parts, carbide, and so forth. All manufacturers consider this de□ðciency is due to two points—weight and appearance. Appearance is a minor detail. You arrive at the hundredth milestone, begoggled and dusty. The colour of your enamel and the shape of your tank are out of mind. Or you run out of petrol in the prehistoric village of Pokeington-in-the-Mud. Do you admire that elegant plated cylinder, now gurgling its last driblets? or do you abuse its maker? Weight is a more serious matter. But let it be remembered that a motor cycle is meant to go. If you have a good machine and are master of it, it is going ninety-nine hundredths of the time it is out of its shed. And when it is going, weight is of little account. If it breaks down, it is generally your own fault, and you deserve the penance of pushing it; while if your business consists in dawdling from house to house, by all means get a featherweight. In the present stage of the industry, given a fairly experienced rider, the ideal touring machine is a 2¾hp of good carrying capacity. If it is good and you are capable of keeping it 'in tune' (the real test of a driver), never mind if it does weigh 190lb all on. It will take you up any hill at a good pace, and you have a range of speed from 10 to 28mph all day long. For those who agree with these premises, it is not worth while entering into details of speci□ðcation, especially with regard to tank accommodation; but a few notes on general speci□ðcation may not be out of place. Simplicity should be the tourist's keynote. Touring is a stern school on an intricate machine, and the main object of touring is not (to most riders) a lesson

"The author of 'Motor Cycle Touring', Mr Davies, with his 2¾hp Excelsior."

in amateur mechanics. So the belt drive and a surface carburetter are not to be scorned. Nothing can happen to either that need delay you. Numerous hints appear constantly in this paper on belts. There is no reason to be in-credulous about them. A good V-belt will not slip or

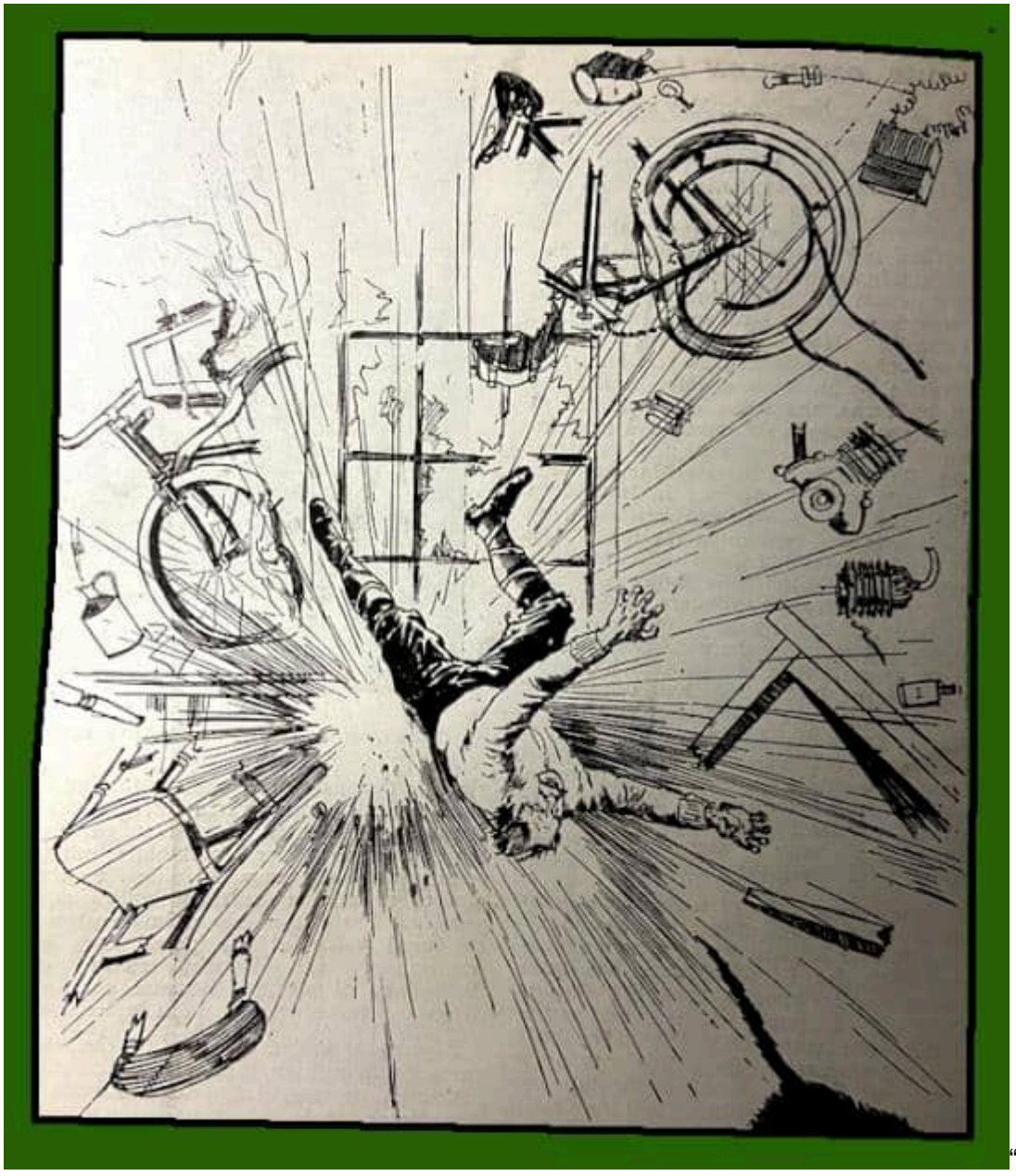
pull through if you follow those hints. A Lincona will slip if it is allowed to get dry and dirty; the novice then shortens it. It next pulls through, and he writes a letter of abuse to the makers. Much loss of temper will be saved by the use of a Lycett's V-belt. It is □ðrstrate,andasthe holes are ready bored and copper lined, any-one can 'get through' quickly with it. A Lincona during last May pulled a forecar with 300lb 'up' over 55 miles of hilly road in three hours, and, wait a minute, it was pouring with rain, there was not a level mile the whole way, and the mud lay so heavy on the roads that the engine was driving even down two 'boarded' hills. The □ðrstslipoccurred at the 52nd mile, though all the way the surface water was being swished up against the hot engine and blowing oī in steam. As regards carburetters, authorities are much divided. Adherents of the he spray have two watchwords: (1) The spray will use bad petrol; (2) why are all cars □ðtted with sprays? The Minerva carburetter, in my experience, will always start on fresh spirit. The new .700 Carless and .718 Pratt's have so far caused me no trouble. I am not a chemist, and do not know (perhaps an expert on the staī will enlighten me?) if there is a diīerence between fresh .700 petrol new from the tin and .680 staled to .700 by exposure to the air and heat. I admit my carburetters give trouble with the latter. Starting diīiculties with the surface type are generally due to petrol being left in overnight. The bottoms, of course, are dense, and staled by the heat of the exhaust box. But the careful driver so arranges things that he always reaches home with his □ðoatlow. He throws none away. As he switches oī at the shed door, his □ðoatisalwaysjangling near the bottom of the carburetter; and next day he lets in more, and sails away at once. What a comfort, too, should a stop occur on the road, to know you have only the ignition to test. With fresh petrol in your tank gas must reach the engine, and so—where's the spark ? And then forward! Of course all cars use the spray. A car engine runs at a steady pace, and you have enough to do with your gears without any mixture changes to allow for. Then on a car the carburetter is snugly tucked under a bonnet, and grit and dust are eīectively barred. For an engine on a bicycle that must run from 500 to 2,000 rpm at your will, the surface is equally eīicient, and I □ðndtheairlever a fascinating study. Let tank design come last, as it arises out of what we are saying. We have a good engine, simple transmission, simple carburation, all on a good frame. Next comes that elusive sprite, electricity. This force is certainly feminine in sex. What so adorable as the buzz of a fat spark, the hum of regular explosions? What so annoying as a dull glow lamp or an unresponsive trembler blade? There is no doubt this is the tourist's chief anxiety: he must carry a full kit of spares—spare plug (eschew porcelain), spare trembler and screw, and why not a spare battery? Most makers □ðta20ampere-hour accumulator. Splendid things they are; they will carry you 800 miles on their best behaviour. But a bad jolt, a little carelessness in packing, a short circuit (these are mostly our own fault), and the battery will run out in ten miles. Then you are stranded. It is far better to carry two accumulators, even if they are only ten or eight ampere-hours apiece. With rubber packing one may be lucky for months. But it is a very small thing to carry two; and remember if you have only one, and for any cause it fails, you cannot possibly □ðreyourengine.Thisis a point for designers. Hooydonk and the Humber people are pre-eminent here. One or two other □ðrms□ðtoneportlyaccumulator and leave a neat little empty compartment, labelled in sections 'Spare parts'. Everytime you open the battery box, out drop your 'spare parts', till, to save your pockets, you entrust nothing more precious to that niche than a plug of cotton waste. Knock out that silly partition, sell your big battery, and squeeze in two small 'Invictas'. Then you may wave your hand to a departed spark, even on the top of Ben Nevis. At length we come to petrol storage. We read our harassed expert's replies to would-be purchasers. 'The X————2¾hpcarriessuīicient petrol for 70 miles; but it is possible to clip a small cylindrical tank behind the saddle.' So it is; but we have a rear carrier, with all our week's impedimenta, a poncho, and a corpulent toolbag there already. Not much space to spare.



“Diagram of the SuggestedAlterations. **A**, Surface carburetter; **B**, Warming pipe; **C**, Petrol tank; **D**, Accumulators; **E**, Coil;
F, Oil tank; **G**, Spare petrol tank; **H**, Silencer; **J**, Oil pump.”

Why has the maker wasted so much valuable room between the back wheel and the seat-pillar tube? and, again, below the tank in the diamond frame? That gap just in front of the back wheel has been covered by a registration. The man known to the trade as ‘having his head screwed on the right way’ has already annexed that for himself. You pay him a small royalty, and it is worth it. It adds little to the weight when empty, and on a tour is invaluable. The space below the tank is usually □ðlled by a silencer—in shape ugly, in quietness de□ðcient, and generally too near the surface carburetter to give the best heating results. Heat is chie□ðy needed in starting, and then, of course, none is at □ðrst obtainable. When thoroughly going the big silencers nearly boil the petrol in the carburetter; and, further, on many machines warm up the accumulator as well. The sketch shows the silencer in a far better position. A narrow bye-pass tube from the elbow of the exhaust pipe goes through the carburetter. A further re□ðnement is to □ðt a cock outside the carburetter, insulated from heat by asbestos packing. This device is not unlike that employed on the famous Ariel tricycle. Smaller details are the pump, which may be carried along the top tube; the carbide carrier (Gamage supplies a long thin cylinder, which may be carried down the seat-pillar tube); and a second lamp-bracket can be □ðtted to the forks. There is a reason, of course, for the position allotted to each thing in the tank. Petrol and oil must be above the carburetter and engine respectively, except on the air pressure method. Air pressure feed is used for the back petrol tank and for the oil in the bottom of the diamond frame. The oil tank is admittedly not very accessible. A projecting nozzle can be □ðtted at the side; but for the machine under notice a long □ðlling tube projects up, through the petrol reservoir to the top of the tank. Battery and coil should be near the engine, theoretically, to keep the wiring short. But if the wire be of high quality, and the terminals not soldered, but shaped of copper and compressed on the wire, long wiring gives no trouble. The Excelsior, which has very long wiring, gives no more trouble than the Ormonde, on which the wiring is reduced to a minimum. The oil pump is best □ðtted either on top tube (another Phoenix patent) or in the position of last year’s Excelsior—on the front end of the tank, lying against the triple head. Notice how compact the machine is; nothing can be damaged by an ordinary fall except the crank, and that protects the contact breaker, because it projects further. If that occurs, footrests on the forks support your feet, and

a running mount is necessary for a start. Dust will hurt nothing but the belt. If you like, you need not clean the machine between rain and rain, barring always the belt You have petrol for 200 miles, plenty of oil, room for your luggage and toolbag, and a reserve store of electricity. If you can spend from £50 to £60 on a good motor, may these minor matters bring you all comfort and con□ðdence on your tours."



"PICRIC!

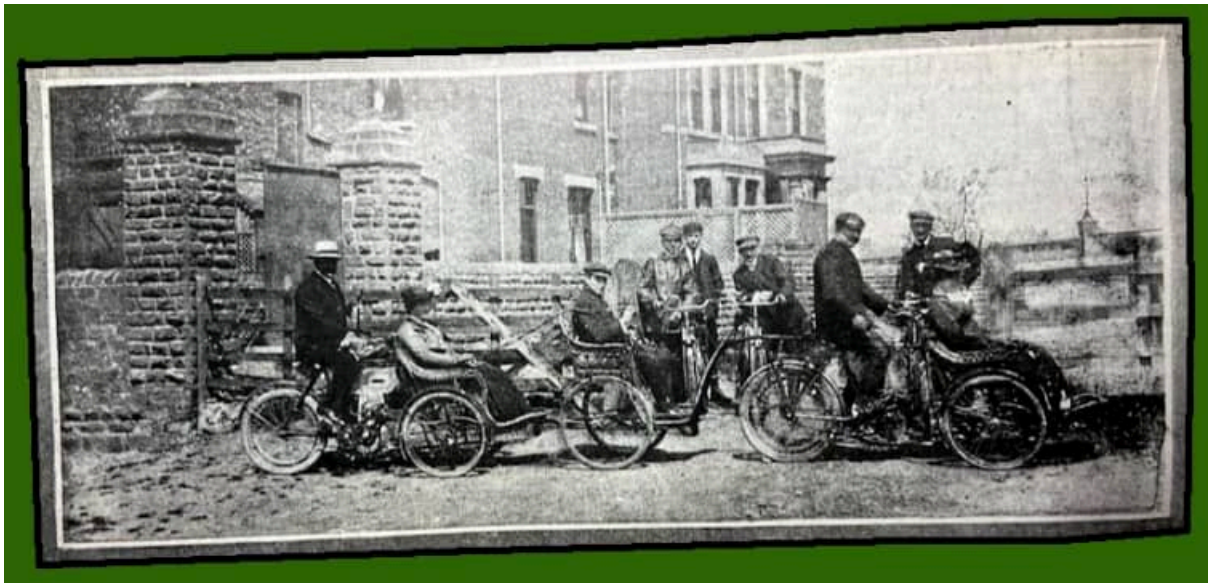
Extract from a letter received from a reader: 'Sir, I have lately been trying a mixture of Picric and Petrol, with gratifying results.'"

"THE ULSTER SECTION OF THE Motor Cycle Union of Ireland certainly holds its competitions under very diīerent conditions to the Central Section of the Union. As our readers will remember, the competition. arranged for Glenamuck was stopped by the police. But on Saturday, although the police were again present, and in considerable numbers, it was not to interfere with the competitors, but to assist oīicials, as the race was held under special permission of the Bangor Urban Council. Although the hill was a good one to test the capabilities of the motorists and their mounts, its situation was not the one that would have

been selected by the committee as a considerable number of residences abutted on to it. However, when prizes are oīered, and the Union invited to promote motoring interests in a certain district by a competition, the committee felt they would fail in their duty if they did not do everything in their power to meet the wishes of the donors. The race had every prospect of being a huge success, 30 competitors being weighed in by the handicapper, but a drenching morning deterred many from facing the 14 mile ride to Bangor, and only 13 actually started, with the following result: 1. 'Patrick' (Centaur 2¾hp) 52⅗sec; 2. Ireland (Humber 2¾hp), 60⅘sec; 3, Stewart, (Centaur 2¾hp) 61sec; 4, Mallon (Quadrant 3hp) 61⅗sec; 5, Wilkinson (Triumph 2hp) 62⅖sec. The distance was only 720 yards, but the hill had an average gradient of 1 in 12, while about 200 yards near the top a gradient of 1 in 8 proved the most trying point for all."

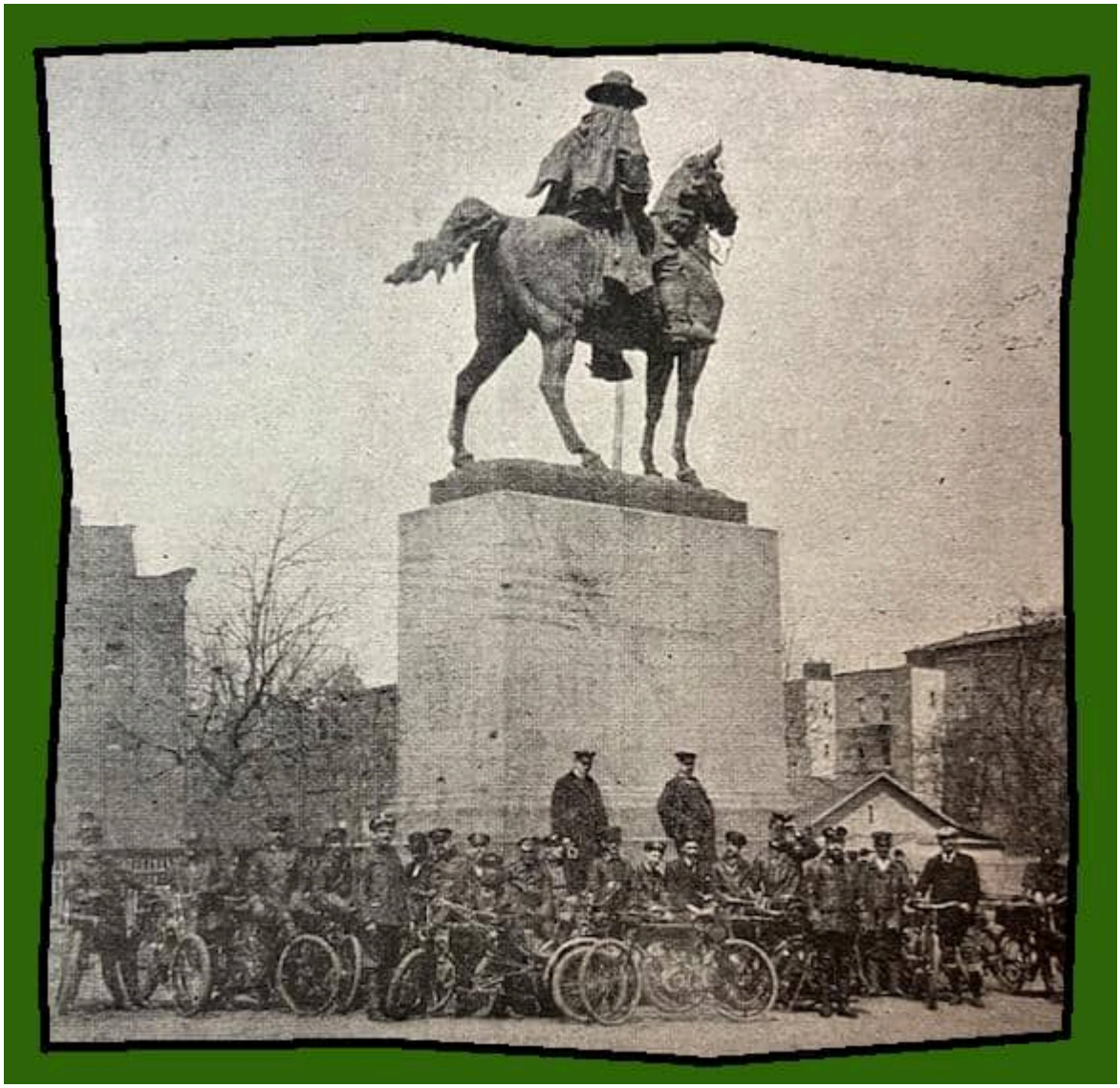
"The Bangor hill climb. Patrick, the winner, nearing the top of the hill."

"MR EG YOUNG, OF NOTTINGHAM, sends us a photo showing what a 2½hp motor will do. The motor is an ordinary Minerva, with suction opened inlet valve. He was out with a fore-carriage and trailer and passengers—in itself a huge load for a 2½hp machine, and he came across a beginner who was learning to drive a fore-carriage. The motor on this machine had gone wrong, and would not move, so Mr Young decided to take this machine in tow home. Despite the enormous weight of machines and passengers which worked out at well over half a ton, the motor proved quite equal to it, and pulled the lot in □ðne style much to the astonishment of passers by."



“Severely testing a 2½hp Motor.”

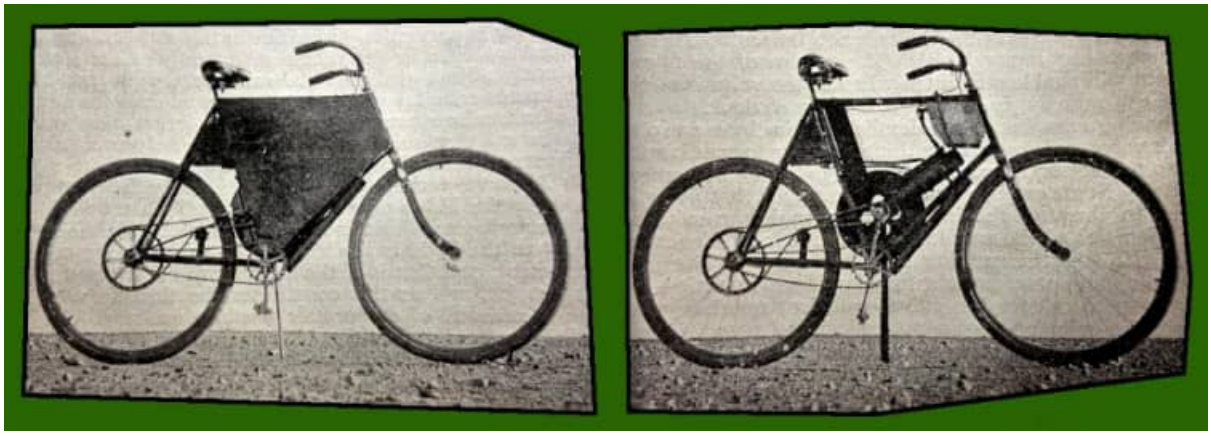
“ALTHOUGH [IN THE USA] THE MOTOR-BICYCLE is frequently described as the connecting link between the automobile and the bicycle, motorcyclists have evinced a disposition to □ðock by themselves, to organise their own clubs, to promote their own contests, and generally to direct and attend to their own aīairs. A year ago there was but one motorcycle club; to-day there are half a dozen, and as many more are in prospect. It is now the ‘Massachusetts Bicycle and Motorcycle Club’, the good old Boston organisation having at a recent meeting taken under its wing a motor-cycle contingent. The move has been on the tapis for some little time, it being a question whether the rapidly growing motorcycle interests should form a club of their own or join forces with the Massachusetts Club. The latter decided at a special meeting to add ‘Motorcycle’ to its corporate name, and there are now a round dozen members using motorcycles.”



“Members of the Alpha Motorcycle Club, Brooklyn, New York, in front of General Grant’s statue; taken on their return from their three days’ trip to Atlantic City and back.”

"The Warwick. A neat Motor-Bicycle of American construction."

"SELF-PROPELLINGWHEELS,whichcanbe used with or without the motor, are the newest in motor science. FESteīey, of SanDiego,California, has just invented a motor-bicycle which bids fair to do away with the present much used wheel. Themotor mechanism is remarkably complete, and the machine generally has a wonderfully neat and compact appearance. The motor is of the gasoline variety, weighs about 25lb, and develops 1hp. It occupies a space 15½in in length by 3½in in thickness, the design being so thin that it can be placed within the diamond frame of an ordinary bicycle without interfering with the pedals. Freedomfrom vibration and noise is one of its main features, and a speed of 25mph, with ability to surmount 10% gradesare claimed for the Steīey machine. A few minutes' work with a single tool—a screwdriver—to detach the motor from the bicycle, practically givesthe owner a motor-cycle and an ordinary bicycle in one."



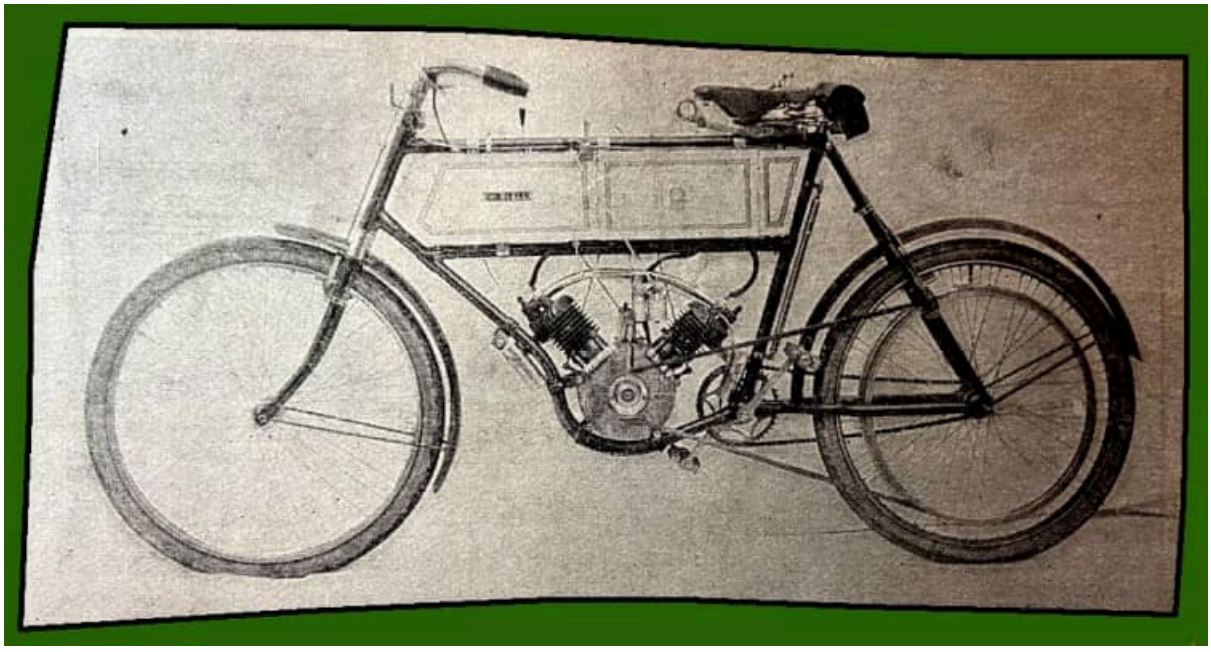
"The Steīey Motor-Bicycle, showing the motor encased." (Right)"The Steīey Motor-Bicycle, with the casing removed and motor exposed."

"MR MORTONPONDER,ofthe Auto Cycle Club, was the victim of a Bank Holiday bounder at Whitsuntide, but the bounder has had to pay the piper since. Mr Ponderwas riding his

motorcycle with a trailer attached along the RedbridgeLane be tween Wanstead and Ilford, and gavewarning to a group of four men walking in the road. Whilst passing them, one of them, named Ernest Beckett, thrust his stick into the spokes of the back wheel. Mr Ponderwas, by this action, thrown, but the only damage to the machine was to the mudguard. Theman swore that he had been knocked down, and that the stick had got into the wheel in consequence, but the evidence of the rider and his friend in the trailer was corroborated by Dr Marsden, who was passing at the time. Mr Tabrum, Chairman of the Bench at Stratford Police Court, said that he was of opinion that the defendant had had too much drink, and had performed a very dangerous action. He would be □ðned5s,andhaveto pay the costs and damage in addition, amounting altogether to 9s 6d. Defendant asserted that this was 'because the other side had black coats,' to which the Chairman replied that if he had worn a black coat the □ðnewouldhavebeena sovereign."

"IT OFTENSTRIKESONEasstrangethat there should be such a diīerence in the noise made by motor-bicycles of diīerent makes. Passingalong Oxford Street the other afternoon the writer took note of three machines as they went by. AMinerva 2hp with the mechanical inlet made a sharp penetrating report that drew one's attention to it at once. AHumber 3hp on the other hand had a distinctive, but not unpleasant, 'swish, swish' that seemed to harmonizewith the purring of the chains. A Quadrant 2 hp gaveout a peculiar drum-like sound."

"THE MACHINEILLUSTRATEDismade by the Eclipse Motor and Cycle Company, John Bright Street, Birmingham. Themotor has two cylinders set in a loop frame, and it will be noticed that the wheel base is extra long. Themotor is so arrangedthat either cylinder can be worked independently, and thus 2 or 4hp can be obtained as required. Thetransmission is by a V-belt. The petrol tank has a suīicient capacity for 150 miles running, and there is also a compartment that will hold two accumulators, spare inner tube and belt. Thecarburetter is the well-known 'Clement' type. Two rim brakes are □ðtted.Themakersclaim that the machine will take a forecarriage or trailer up almost any hill."



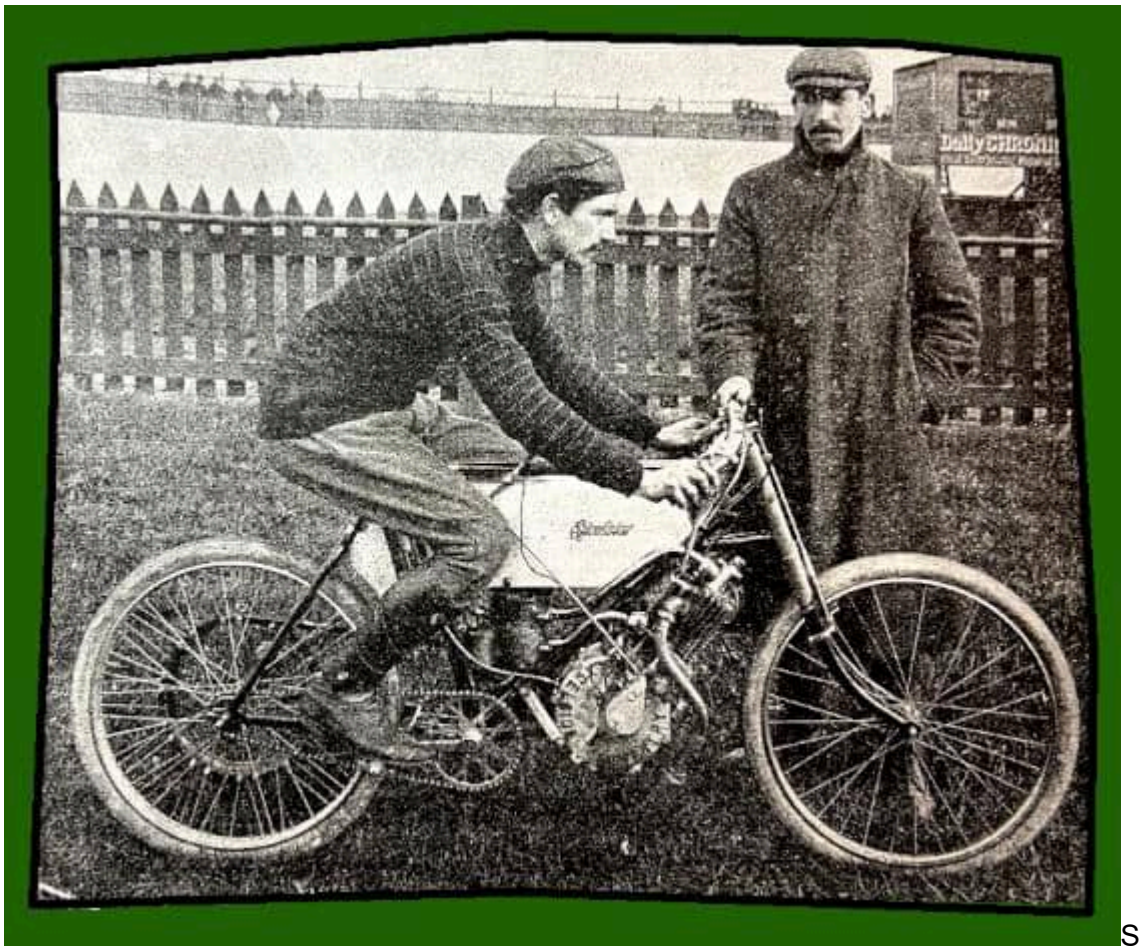
"The Eclipse Two-Cylinder Motor-Bicycle." It was marketed as the 'Xlall'.

"THE PRIMUSMOTORWORKS,Rathgar Road, Loughborough Junction, London, SW, have recently introduced a type of motor-bicycle suitable for a lady to ride. A two-stroke motor is

arranged in front of the steering column, and drives by means of a friction wheel on to the front tyre. The petrol tank and surface carburetter are mounted in between the handlebar. The induction coil is placed below the down tube, and the accumulator is strapped behind the saddle. The motor is readily thrown in and out of gear with the front wheel by means of a lever near the handlebar."

"AS A PRELIMINARY TO THE Circuit des Ardennes, two races were held on Friday last at Huy, open to vehicles entered for the big event. The races were one kilometre, with a □ðying start of about a further kilometre, and a hill climb, the length of the hill being 1,352 metres…Griet, on a Griīon motorcycle, did 37sec, or 60½mph. The other times in the cycle class were all very fast, no less than eleven exceeding 45mph. In the hill climb Griet again made fastest time for cycles, 54sec." This, to the best of my knowledge, is the ïrst report of a bike doing a mile a minute—Ed.

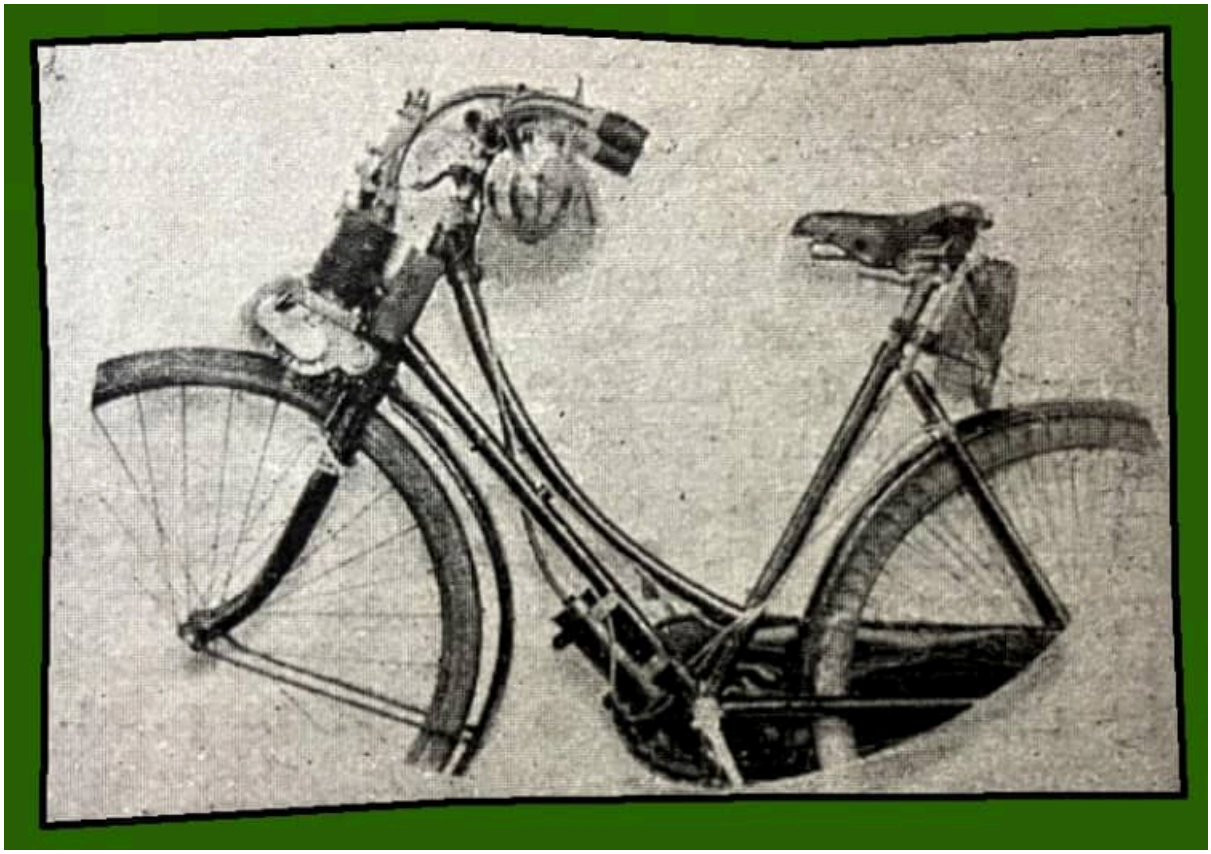
"AT CANNING TOWN, ON SATURDAY, several interesting motorcycle events □ðgured in the well-arranged programme of the West Ham United FC's □ðrst meeting of the season. A 25 miles scratch race was won by Sam Wright, on an Excelsior, in 30min 38⅘sec; JF Crundall (Humber) being second, and TH Tessier (Bat) third. Crundail had at one time an excellent chance of victory, but this was spoilt by him losing his pedals in the twentieth mile."



S Wright (Excelsior) beat JF Crundall (Humber) and TH Tessier (Bat) in a 25-mile race at Canning Town. Excelsior ace Harry Martin is pictured on the bike; Wright is the chap in the overcoat.

"THE TRIUMPH CYCLE CO, COVENTRY, have just got up to their London depot one of their new 2½hp machines. It impressed us as being a very nicely designed machine. The motor is specially made by the company and is mounted just above the bottom bracket in a slanting

position. Thecarburetter is a surface pattern, having an extra large petrol capacity. Ignition is by trembler coil, this being mounted behind the back forks. Transmissionis by 'Lincona' belt, the pulley having a large diameter. A very neat sight-feed lubricator is placed in a convenient position near the steering pillar. Two brakes are □ðtted,viz,aspecial rim brake for the front and a 'Triumph' band pattern for the rear wheel."



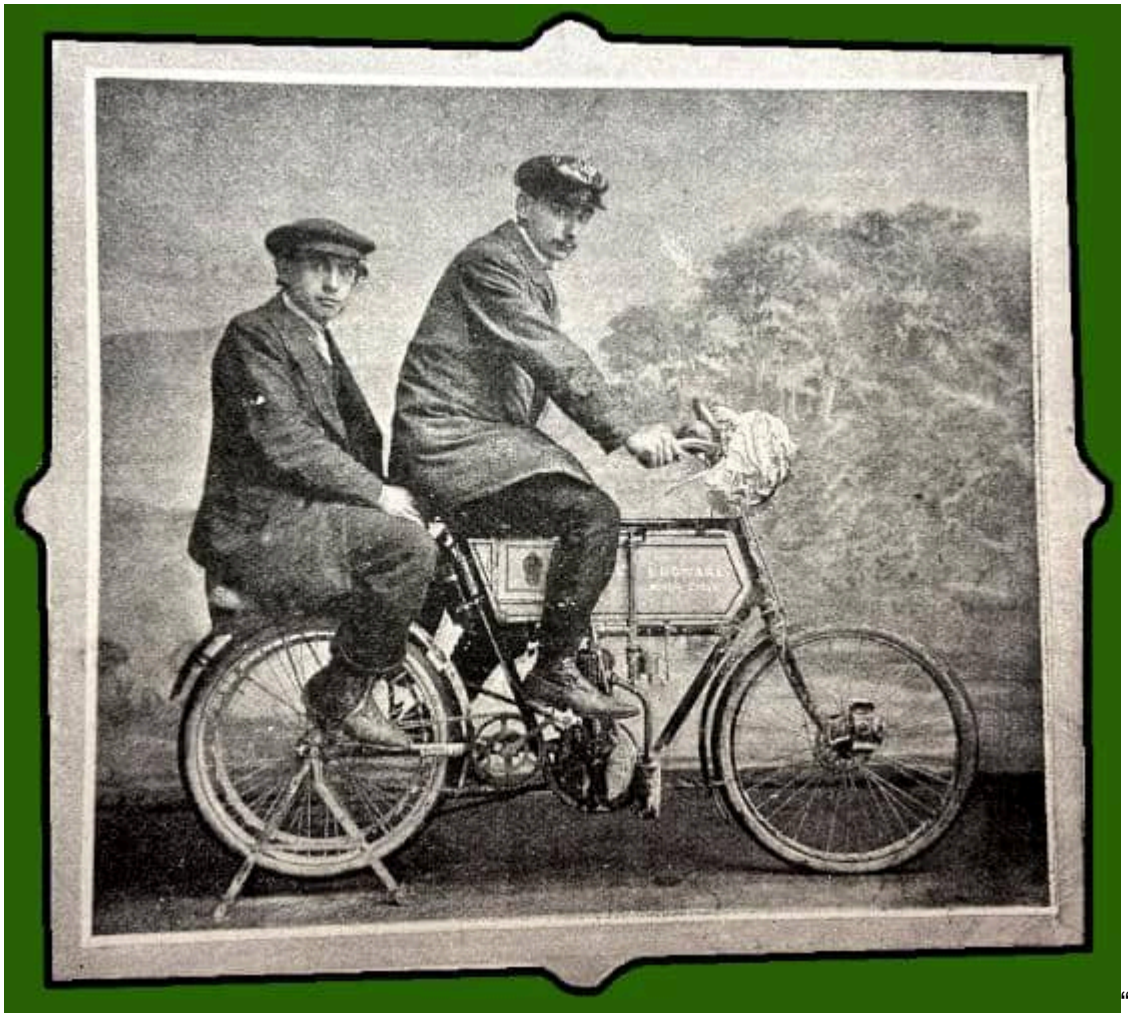
"A New Pattern Motor-Bicycle for Ladies."

LONDON TO SWITZERLAND AND BACK ON A MOTOR-BICYCLE.

An Account of a Trip by Two Brothers on a Single Machine.

"ON THESATURDAY,attea time, we had scarcely thought it, and had not even purchased our motor-bicycle. Neither my brother nor myself had had very much experiencewith the motorcycle; in fact, he had never been on one before. I had previously hired a motor-bicycle of last year's pattern from time to time and had ridden, perhaps, 100 miles, but I may say that we had thoroughly mastered the working details of the motor with which the particular machine we rode is □ðttedbeforewestarted. Theoutcome of our decision was that we purchased a new 1903 pattern motor-bicycle, and resolved to spend our Whitsuntide in Switzerland. At □ðrstsightit seemed hardly possible that a 2hp motor-bicycle would carry my brother and myself, but by a little contriving an ordinary luggage carrier was □ðxedoverthebackwheel, and two or three cushions strapped on for a seat, two straps attached as stirrups, and on the Sundayafternoon we had a preliminary canter up and down the EdgwareRoad. At 6.45 on the Sunday evening, having □ðlledour2½gallon tank with Pratt's 'A' spirit, we strapped our belongings on the machine, I jumped into the saddle, my brother got on his seat at the back, we tootled our horn

and made for Newhaven, with plenty of time to catch the 10.40pm boat for Dieppe. Westminster Bridge Was negotiated and then came Streatham, where we were misled by the sign-post. The result was that we did 100 miles instead of 59, and of course missed our boat, and had to wait till 11 o'clock next morning. A surprise awaited us on going aboard. All our petrol had to be wasted, as the steamboat company will not allow any one to take a drop of petrol on board the steamer. We duly arrived at Dieppe at four o'clock after a very nice passage, expecting to get to Paris the same night, but we reckoned without the Customs authorities, who demanded from us 110fr 25c (which works out at about 2fr 20c per kilo). A hasty consultation took place, and then we discovered that our combined funds only amounted to 75fr. Entreaty and explanations proved of no avail, and there we had to stop until we got the money. We telegraphed to England and again experienced trouble—Bank Holiday prevented the £3 which we had wired from reaching us until 10.30 on the Tuesday morning, and now as we had not reckoned on our hotel bill and other expenses after paying duty, this only left us exactly 15fr to do our journey on, and we had petrol to buy. We found a most obliging man in the person of M Barter, Quai Duquesne, Dieppe, who gave us some useful tips and supplied us with some excellent petrol, and here, let me say, there are at least half-a-dozen kinds of petrol in France, so one has to be careful, and it works out much dearer than in England, so that our 15fr dwindled very considerably. At last, at noon, we were fairly on our way, but nearly had a collision on leaving Dieppe, on account of our riding experiences in England, always keeping to the left; here, in France, it is the rule to keep to the right. The diīerences between many of the English and the French roads are at once apparent, the roads in France, in the main, being beautifully kept, broad and straight, and the guide posts are—as the Americans say—fool-proof. Sometimes we could see the road in front of us, straight ahead, for miles, and we travelled for long distances without meeting a soul, and when we did meet anyone and asked if we were right for Paris, the answer was always the same, 'Oui, oui! toujours tout droit." Arcques was soon reached, the motor going beautifully, then on to Neufchâtel-en-Bray, when bang! a tyre puncture! However, we had come (as we thought) well prepared, and took the matter very coolly, but when we came to look amongst our kit, we had left all our tyre repairing out□ðt behind. Fortunately, we were within a few yards of ML Hernault, who quickly repaired our puncture, so 1d us a repairing kit (which further diminished our store of cash) and gave us what proved most useful—a small Michelin guide-book. We then got away Gournay, through Pontoise, Courbevoir, to Paris. About 15 miles from Paris the road is very bad, consisting of great cobbles pavé badly kept, and we were not sorry when we were pulled up by the gendarme at the Octroi gate. They carefully measured the petrol in our tank, and we had to pay a further Octroi duty of 40c. We reached Paris about 6pm, and found comfortable quarters close to the Port de Vincennes. We had a stroll to



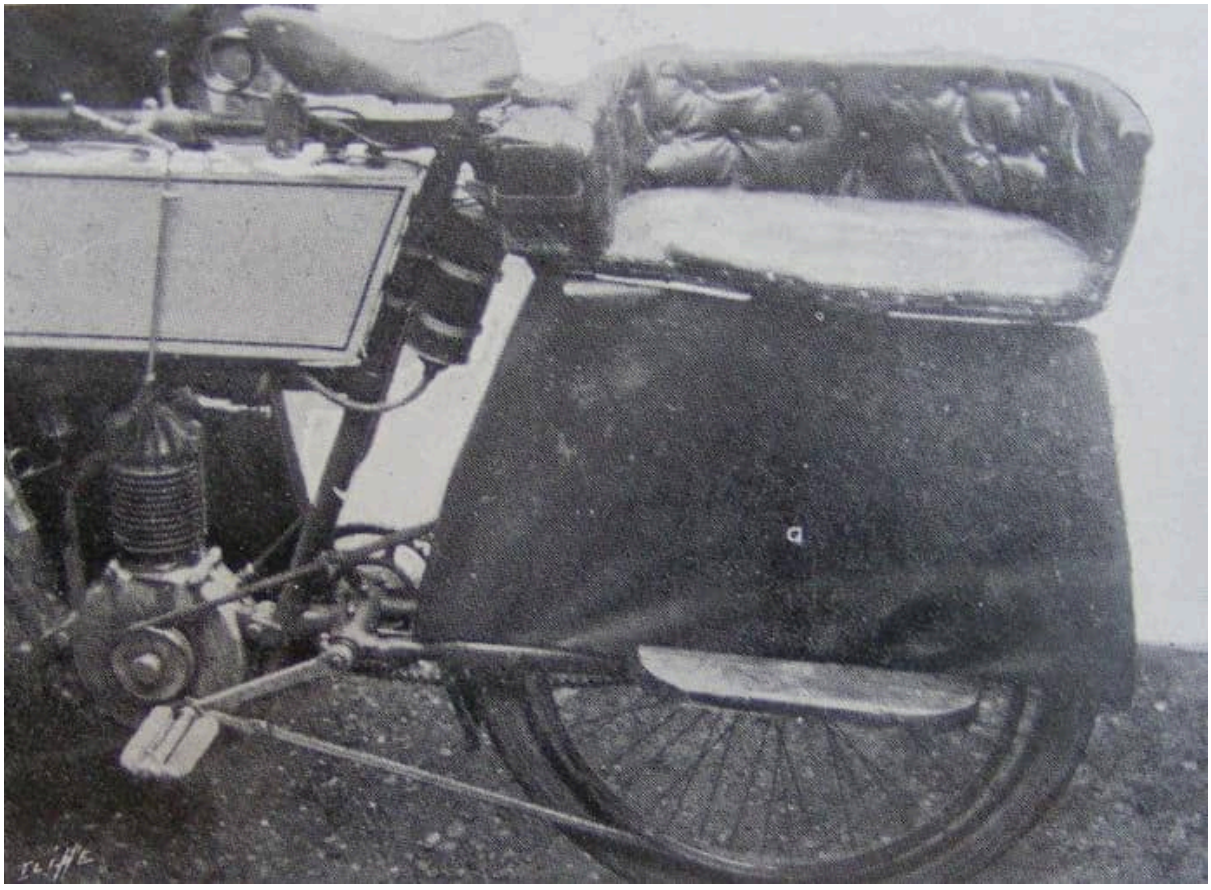
"The travellers and their mode of travelling."

stretch our legs, and started oī at □ðveinthemorningwith only 7fr left. At the gatea curious little surprise awaited us this time-3d of our 'octroi' was re-turned, as on measurement it was found that we had used one pennyworth of petrol in Paris. Eventhis was acceptable now as our funds were so low. We had again to negotiate 15 miles bad road, which resulted in another puncture, but this we easily managed to repair, and were soon oī again. Here we have pleasant recollections of a motor-tricyclist, who kept with us for about 20 miles, sometimes a little behind, sometimes a little in front, but he dropped behind at last, as our machine proved a little too fast for his tricycle. At Fontainebleau we □ðlledupthetanks with petrol, and then away we sped to Montereau, past Leno, Tonnerre, Monthard, reaching Dijon at about 6.30. On and on without stopping—wecould not aīord to stop; we must keep our remaining 1s 4d in case of emergencies. But we were consoled with the thought that there was plenty of money awaiting us on the frontier. We scarcely noticed what villages we came through until we arrived at Pontarlier, at the frontier. Therewas nothing to worry us, the motor was goingwell, we were both comfortable, and, best of all the road was straight and good. Without any diīiculty we received from the Customs oīicials our 110fr back, and forti□ðedourselveswithsome of the good fare at the Buīet-la-Gare. After a short rest we again mounted and arrived at Lausannesoon after ten. Our machine had gone beautifully, o'er hill and dale, without trouble. Thejourney from Dieppe to Lausanneoccupied about 46 hours, including stoppages, nothing very wonderful, unless you remember that there was an extra passenger, who only had to get down once because of the great hill outside Pontarlier during the whole of distance. On the following Sunday at eight

o'clock we started back. Paris was reached at seven on Monday evening, and then came a hard run against time for the midnight boat from Dieppe. The last 30 miles of the trip brought us blinding rain and was the worst experience we had during the ride. We got soaked to the skin, but fortunately we caught the boat at Dieppe and ran up to London comfortably on the Tuesday morning from Newhaven, reaching home at eight o'clock. It was an enjoyable trip for both of us, the shortage of cash providing us with many recollections which we can now laugh at. But the credit of the performance is entirely due to the machine, and we are looking forward to a round of experiences with it which shall at least be as pleasant as our trip to Switzerland. For the bene□ðtofreaderswho may intend making a similar tour, the following particulars may be of some assistance: The charge for taking the motor bicycle across, without petrol, is 6s from Newhaven to Dieppe…Wesavedconsiderable money at Dieppe by stripping the machine of its batteries, the rear seat, and sundry parcels, so we actually only paid duty on the weight of the machine alone, viz 2fr 20c per kilo. Everydetail was put on the receipt. We were not required to obtain any identi□ðcationnumberon our machine, but we understand that if a rider stays in the country long he would require to register the machine. Thefrontier oīice is open day and night, and on presentation of our receipt we were immediately handed our money back. (Theplan usually adopted in England to get waiters and other oīicials to accelerate their movements was adopted!) We now had to pay 65fr to go into Switzerland, and the same formalities had to be gone through as when entering France. When coming back we obtained our money from the Swiss frontier, and having joined the Swiss Touring Club in the meantime, we got into France without diīiculty, on presentation of our Swiss Touring Club badge and card. Themachine which carried us so well throughout the journey was an 'Edgware', which we purchased from the Cycle Trade Supply Co, Edgware Road, London, W."

Motor cyclists were certainly 'going foreign' by 1903 to try their luck in the great inter-city continental races. But this is the ĭrst example I've come across of a couple of chaps loading their bike and heading over the Channel on a whim—and they seem to have invented the pillion seat (with stirrups, forsooth!). You'll have to go forward to 1905 to ĭnd another individual example; pillion riding didn't become at all common before the Great War. And they were surprised to ĭnd Frenchmen driving on the right. Pioneers indeed, bless 'em, and we don't even know their names—Ed.

PASSENGERSWERE carriedinforecars, trailers and most recently sidecars but pillion riding was de□ðnitelyanovelty. As The Motor Cycle reported: "The two London riders who recently carried out a successful Continental tour on a motor bicycle converted into a tandem by the simple expedient of □ðttingamake-shift seat on the luggage-carrier over the rear wheel are to be commended for their enterprise. At the same time we do not in the least anticipate that this novel method of carrying an extra passenger is ever likely to seriously rival the trailer or forecar. In the □ðrstplacetherebe but little spring in the luggage-carrier, and, secondly, there is always the chance that it may swing down and let the rider suddenly on to the road." Rather than resorting to the carrier some pillion passengerswere carried in luxury…



“The above illustration is that of a detachable pillion seat for motor cycles which has been registered by Mr JH Rowse, of the Cycle Trade Supply Co. The designer claims that the lowness of the seat makes it specially suitable for a lady, and that there is no trouble in getting on or oī. The maker claims that there is no diīerence made to the ease of steering of the machine, and that the passenger can alter his position within a reasonable degree. Mounting and dismounting are easy, as the seat is so low that once the rider is mounted the passenger has merely to take his seat, and if he requires to dismount he simply steps oī. The attachment will be ready for the market shortly, and will retail at from £2 10s to £5, according to the □ðnish.”

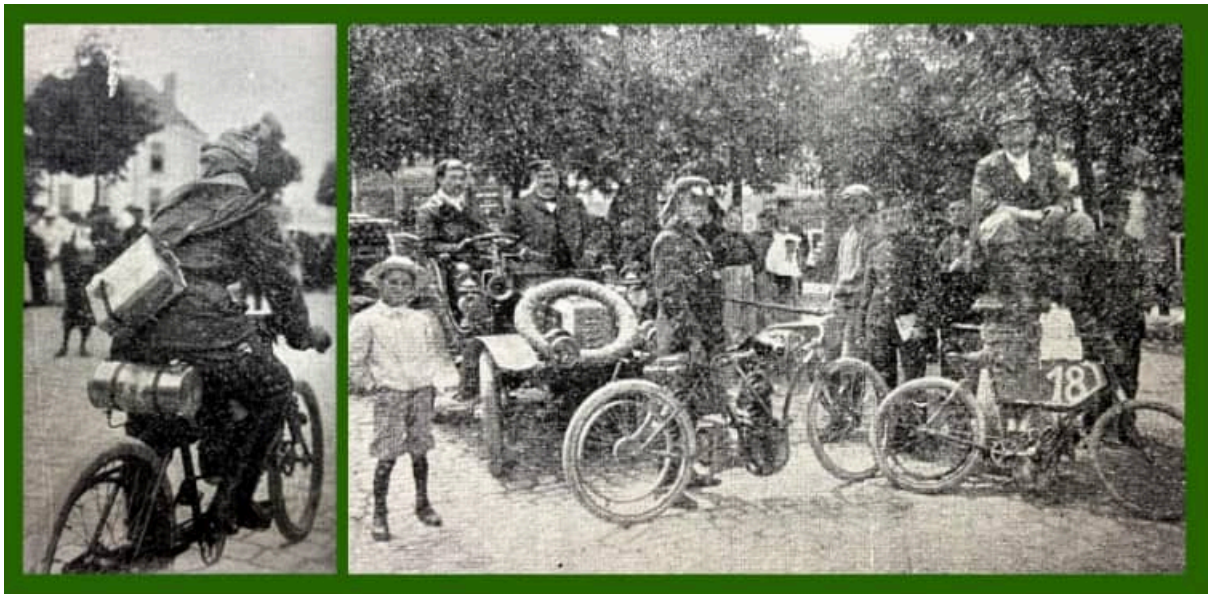
…andhere's the side-saddle pillion in use. A lady could not be expected to sit astride.

"GA BARNESATTEMPTEDtoridehis Bat motor-bicycle □öftymileswithin the hour at Canning Town, but owing to a mishap to his front tyre he fell and broke his arm in two places."

“His excellency Earl Dudley’s Constabulary Escort for touring with his motorcar.” Why the plain-clothes police escort? William Humble Ward 2nd was Lord Lieutenant of Ireland with its strong nationalist movement and, as history records: “His extravaganceand pomposity made him unpopular among the general population.”

“ALTHOUGHBYNO MEANSso big or so important as the Paris-Madrid race, the Circuit des Ardennesis now one of the classical events, and the fact that it has been run oī year after year without the occurrence of any graveaccident, and particularly because this year’s event, in which cars identical with those taking part in the Paris-Madrid race were competing, was so successful, it looks probable that it will escape the fate of prohibition which has this year befallen the classical French contests. Should this be the case we may □ðndtheCircuitdes Ardennes has become the great classical race on the Continent in future. [Cars did six laps of a triangular course totalling 318 miles; the bikes did two laps of a diīerent course totalling 185 miles.]…At 10.10am the □ðrstofthemotorcycles went away. Thestarters were: Dacier (Clement), Pascal (Clement), Oster (Clement), Blondeau (Bichrone), Narbel (Bichrone), Flamant (Minerva), Elscamp (Minerva), Kuhling (Minerva), Olislager (Minerva), Rigaut (Antoine), Kinet (Antoine), Andre (Red Star), Philtjens (Sarolea), Verschaere (Sarolea), Fagard (Sarolea), Demester (Griīon), Lamberjack (Griīon), Meura (Minerva), Cissac (Peugeot),Momo (Peugeot),Lanfranchi (Peugeot),Griet (Griīon), Prost (Doue), Jolivet (Pecourt), Berger(de Pontherey), Lionel (Griīon),

Marnaīe (Sarolea), Ken (Sarolea), Charent (Antoine), Barret (Burman), Bossut (Rivierre), Desenfaus (Antoine), Rene (Antoine), and Pieri (Minerva). All of these machines came within the weight limit of 50kg. The last cycle was dispatched at 11.43, and then it was observed that English cycles and English riders were conspicuous by their absence; neither Arnott on the Werner nor the two Humbers, all of which had been entered, had put in an appearance at the weighing. Verschaere was the □ðrsttogetback to Arlon, having covered the course in 2hr 18min 50sec, but he was closely followed by Demester, who was less than a minute behind, but as Verschaere had started □ðveminutesaheadDemester was already four minutes to the good. Of the 34 starters only 18 □ðnishedthe□ðrstround,andof these seven were inside of 2hr 40min; six more exceeded 3hrs; while Pasco took 5hr 40min. Punctures and other tyre troubles were mainly responsible, but the bad corner on the outskirts of Arlon caught a good many napping, and there were three falls here, but they were not very serious, fortunately. Dacier made fastest time in the second circuit, which was slower all round than the □ðrst. Histimewas 2hr 44min 48sec, but in his case it was an hour faster than his own □ðrstround. Dethesteroccupied only 11sec longer than Dacier, and as his total time was 4hr 59min 46⅗sec he won with plenty in hand, his nearest opponent being Andre, who rode very regularly all through, and who covered the distance in 5hr 23min 26sec." Only eight other riders completed their two laps.

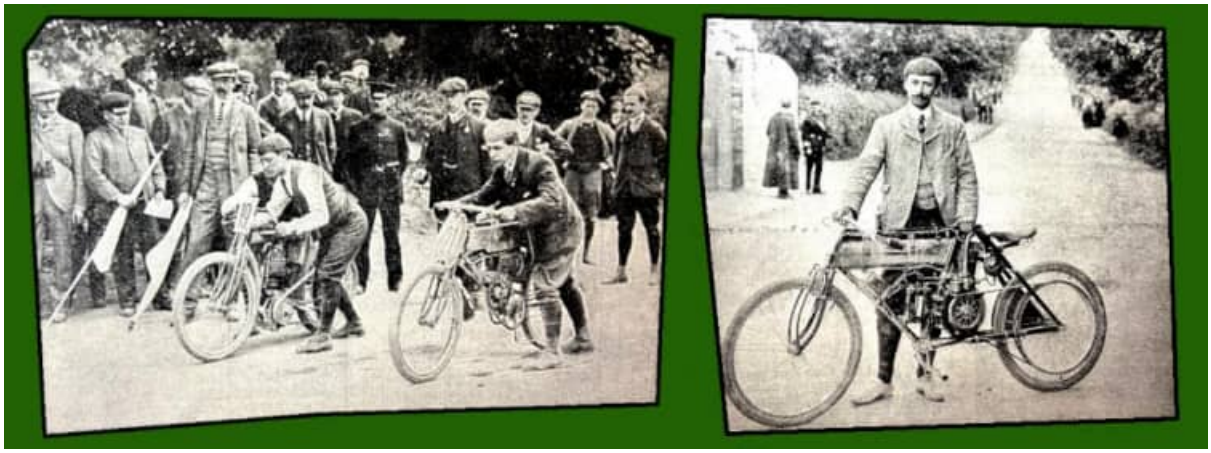


"A Motor-bicyclist fully equipped in the Circuit des Ardennes."(Right)"An Antoine motor-bicycle (on left) and Minerva (on right) at the start."

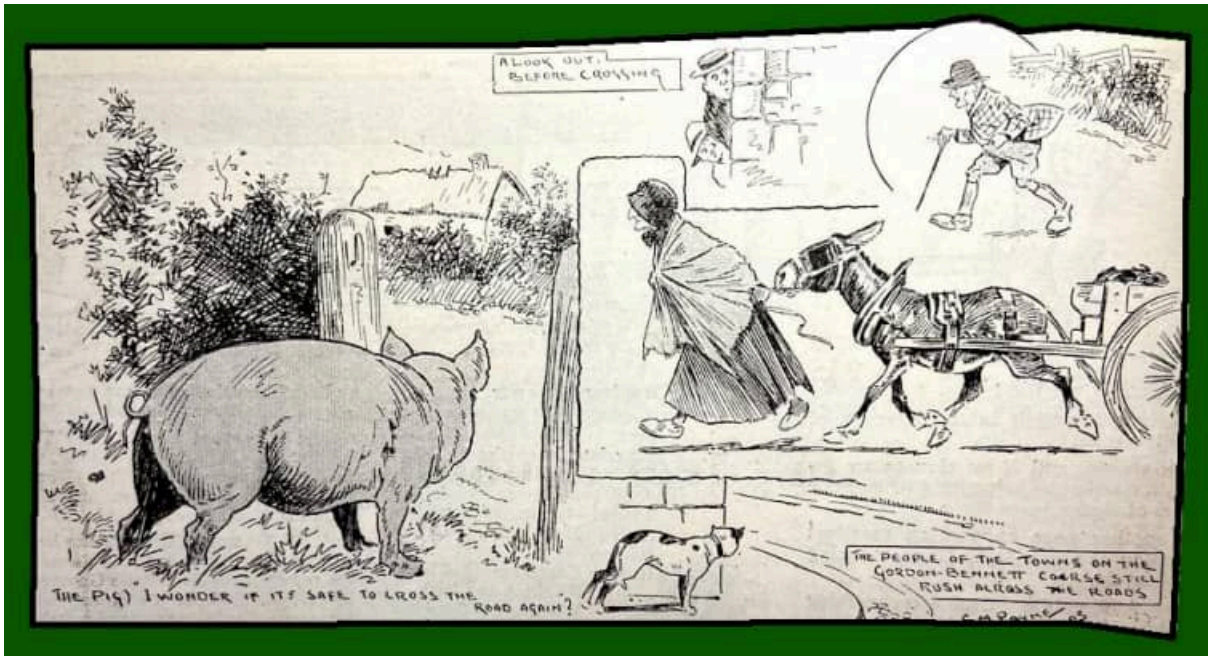
"AS THEDAYOF the ill-fated Paris-Madrid race gradually recedes, we observe, with keen pleasure, that the dispassionate view of the incidents of that event, taken by our own representative at the time, is becoming more general, and it is now being recognised that scarcely one of the awful accidents need have occurred. Bad organisation, ineptitude on the part of those entrusted with onerous duties, and slovenly carelessness, coupled with senseless rashness in the presence of danger on the part of the spectators, were the causes of nearly every one of the accidents, the only two (one of them fatal) which could be ascribed to neither of these causes being due—we regret to say it—to the unsportsmanlike behaviour of a certain class of French drivers…weshall live in the same hope that some suitable punishment had been levied on the individuals concerned. However, it has been clearly proved from the painful accidents of the Paris-Madrid race that accidents, even at the high rate of speed of well over a hundred kilometres an hour, need not happen. Takethe Circuit des Ardennes…thecycles

travelled at a pace which people in this country are given to glibly describe as 'furious'. They contemplate the possibility of travelling from London to Brighton in an hour with a large amount of horror, but, as a matter of fact, they are utterly ignorant of what the pace means, and paint the terrors of motor speed with their brushes dipped in pots of crimson-red and vermilion…Weare glad that the Circuit des Ardennes has passed of without accident, because it con□ðrmsthe opinions expressin these columns that racing well controlled is not so very deadly, and it will, perhaps, silence the shrieks of those who scent dangerin the Gordon-Bennett race. Our opinion is that this event…willoī as quietly and without accident or incident as if i were a mere procession, simply because, in the □ðrstplace,,properprecautions have been taken, and secondly, because, we are proud to say, Anglo-Saxonsare better balanced mentally in the presence of danger."

THEGORDONBENNETTRACESwerea great success; they were followed by a fortnight of motoring and motor cycling events in Ireland, including a hillclimb at Castlewellan and several tours. Here's an indication of the attitude which incensed the Irish nationalist community: "The contrast in the reception of people and animal accorded to our car was very funny. Thewhole of the way we were constantly doīing our hats in exchangefor the enthusiastic welcome givenus. If it had only been possible, many in the party would have liked to have given a ride to some of the peasants, particularly to the pretty Irish girls. In the villages we saw faces which would create a sensation in a London drawing room, whilst the unaīected simplicity of their owners constituted a great charm…"

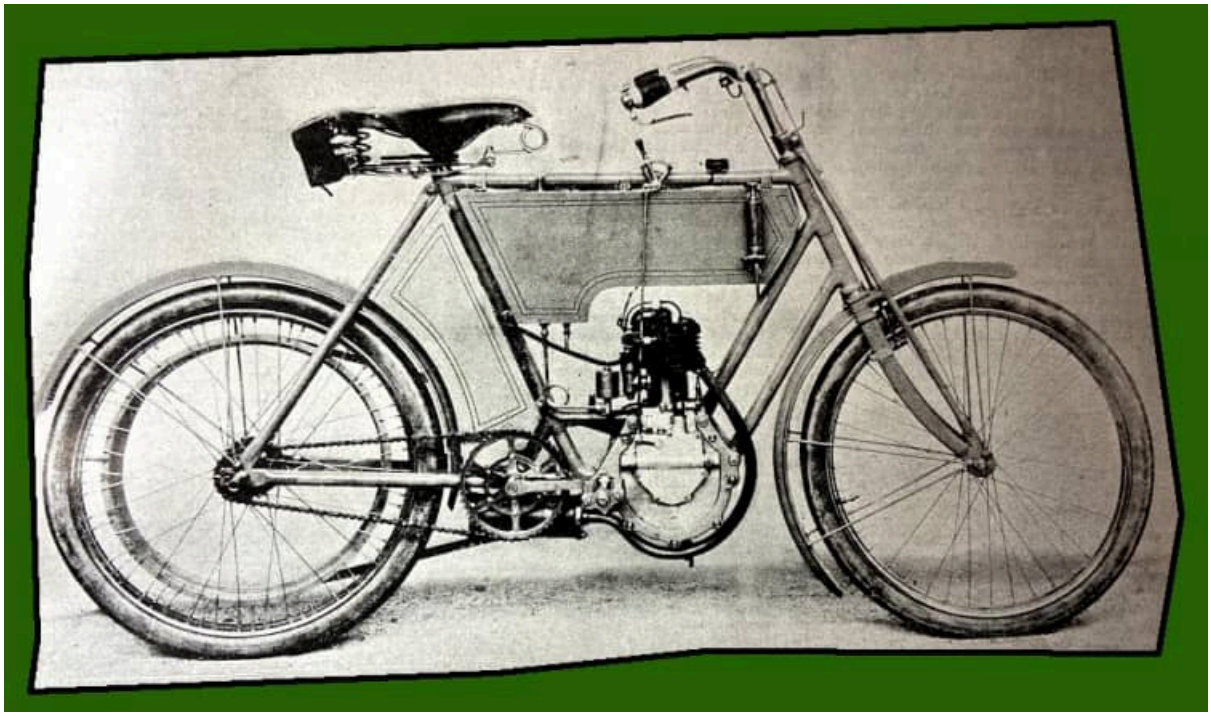


"Chas and Crundall in a heat of the Motorcycle Race at Ballybannon Hill, Castlewellan." (Right) "AC Wright and the Ormonde on which he won the Hill-climb."


A LOOK OUT BEFORE CROSSING
THE PIG) I WONDER IF IT'S SAFE TO CROSS THE ROAD AGAIN?
THE PEOPLE OF THE TOWNS ON THE GORDON-BENNETT COURSE STILL RUSH ACROSS THE ROADS

“Force of habit, or the eīect of the Gordon-Bennettrace on the good people of Ireland.”

“WE AREABLETOGIVEthe following particulars of an entirely new machine to be placed on the market by the well-known RoverCycle Company, Coventry. Theframe has been specially designed, and is registered. Theengine is carried vertically in front of the crank bracket by two cradle plates, one being of horseshoe shape, the other being similar, but having a horizontal member across the top. Theplates are □ðxedbyboltspassing through T-lugs, brazed on the ends of tubes. Extra large ball bearings are provided for both wheels, and steering head. Theengine being placed well forward of the crank bracket, allows of a narrow tread, whilst still retaining straight cranks. Thebicycle has a long wheel base and is □ðttedwith26in wheels. Theengine is 2¼hp. Thecarburetter is of the □ðoat-feedtypeand is □ðttedwitha throttle valve. Thetank contains petrol and lubricating oil only, each division is of great capacity, and is separated from the other by a double partition. Twosets of accumulators and a high-speed trembler coil are □ðttedinthecase at the back of the seat tube, the case being lined throughout with cork. A two-way switch is mounted on the top tube to allow of either set of accumulators being used. The engine is lubricated by force pump. Thethrottle valve and ignition are actuated by levers on the top working on racks. Theback wheel is □ðttedwitha back-pedal expanding brake, actuated by a clutch on the crank axle; the clutch has a throw-out arrangement, allowing the machine to be wheeled backwards, and a safety catch, in case the rider omits to throw his brake in action before mounting. Thefront wheel rim brake is applied by the right hand inverted lever. This lever also cuts oī the spark by means of a special design of switch contained in the handlebar. The left-hand inverted lever works the exhaust valve lifter by Bowden wire, and has a retaining catch. With their wealth of experience and skill, the RoverCompany may be relied upon to have produced an article which will give everysatisfaction.”

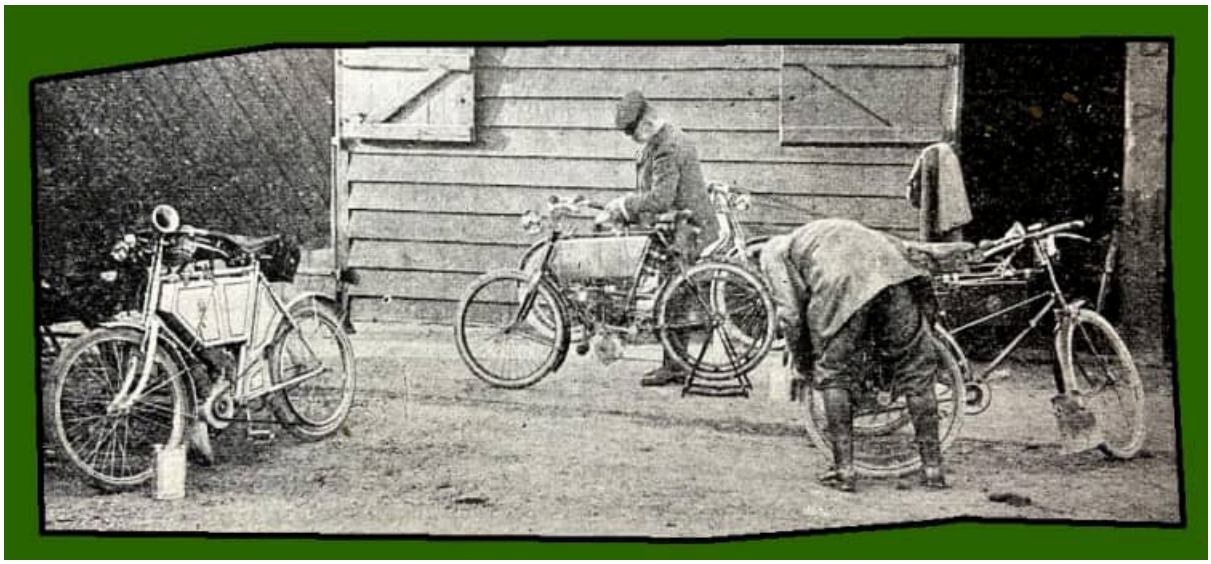


"The New Imperial Rover Motor-Bicycle."

THE MOTOR CYCLING CLUB RELIABILITY 200 MILES TRIAL FOR THE S. F. EDGE TROPHY.

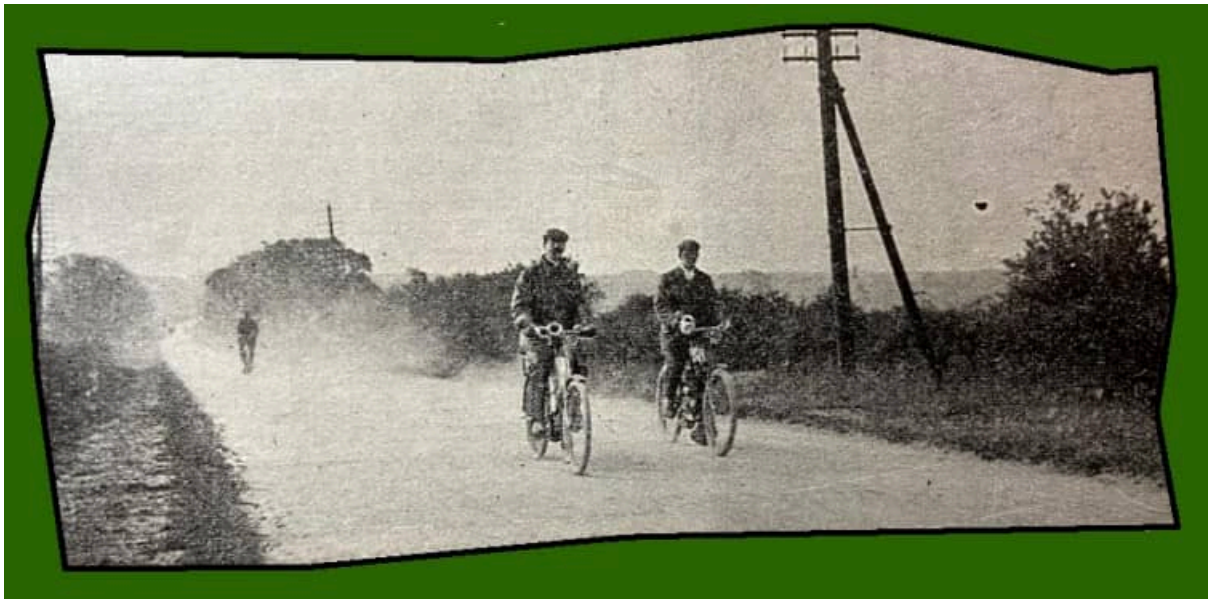
"SATURDAY LAST WILL REMAIN a memorable day in the annals of motorcycling, for the inauguration of a series of tests to prove, if such proof were needed, that the motor-cycle is a machine capable of travelling long distances and giving as little trouble to the rider as an ordinary pedal-driven cycle. The Motor Cycling Club, as the premier club of its class in the country, some months ago decided, with a view to popularising the pastime, to promote reliability test runs over a distance of 200 miles. The President of the club, Mr S F Edge, generously oīered a handsome trophy to be awarded to the rider who gets his machine through the distance without a stop for eīecting any adjustments whatsoever. An entry of 20 had been obtained, and, on the Friday night, all the competitors and oīicials made their way to the town of Hat□ðeld, on the Great North Road, which was to be the starting and □ðnishing point of the test. The machines were all safely locked up at the Red Lion Hotel, and no competitor was allowed to touch his machine after delivering it. As the start was timed for 6am, the whole party were up at the Red Lion for breakfast by 5 o'clock. At 5.45 the scene outside the hotel was an animated one. The morning had broken brilliantly □ðne, and gave promise of a day of glorious sunshine. There was not the slightest element of a race about the trial, as any competitor whose speed at any point was found to exceed a limit deter-mined upon by the committee was disquali□ðed. The following competitors were assembled at the start with their ma-chines: AS Wilson (2¾hp Ormonde); RA Leckie (2¾hp Humber); FR Johns (2¾hp Humber); CW Brown (2hp FN); Jvan Hooydonk (2½hp Phoenix-Trimo); Bert Holmes (2½hp Minerva); HE Cowles (1½hp Phoenix); H Fairfax (2¾hp Werner); Leonard Jones (1¾hp De Dion Clement tricycle); Chester Fox (2¾hp Werner); JH Reeves (2hp Minerva); T Silver 3hp Quadrant); F Hulbery 2¼hp Booth); and CA Vandervelle (2¾hp Ormonde). The □ðrst stage of the run was Hat□ðeld to Stoney Stratford, on the Holyhead road, then returning to Hat□ðeld, making 73½ miles. Next there was a run to Hitchin and return to Hat□ðeld, making a total distance of 100½ miles.). The competitors were started in groups of three, at intervals of a few minutes, the last group left at 6.20. H Fairfax had a stroke of

ill luck before he had gone 200 yards, his back tyre going □ðatthroughthevalve tearing out of the air tube. This mishap put him out of the trial. Theroute selected



"At Hat□ðeld.Gettingready for the 200 miles Bicycle Trials on Saturday last."

consisted of splendidly surfaced roads; to prevent possibility of any competitor missing his way a map and printed instructions were supplied to each. The □ðrstgrouptoreturn from Stoney Stratford consisted of Johns,Leckie, Hooydonk and Holmes, who were ob-served passing through Dunstable all well at a steady 15 an hour. CW Brown early experienced very bad luck with his tyres, having several punctures, one being from a big rusty nail which pierced about half an inch of rubber in the cover and went through both sides of the air tube; he repaired and continued, so as to obtain the distance certi□ðcate.Justabouttwelve o'clock Johns, Leckie and Holmes arrived at Hat□ðeld,theothersfollowing at intervals of several minutes. Thepuncture demon, however, lay in wait for Chester Foxjust outside the hotel, and his back tyre went □ðata moment before he dismounted. Hooydonk had a puncture on his way back, but quickly repaired, and reached Hat□ðeldat12.27. Leonard Jones, on his tricycle, and Silver and Reeves got through the □ðrststagewithout touching their machines. Leckie retired at the end of the □ðrst stage. An hour was allowed for lunch at the hotel, and then the second stage was entered upon. This stretch was □ðrsttoSt.Albans, then by the Watford road to two miles beyond Berkhampstead, where the competitors were checked, turning back for Hat□ðeld,distance51 miles. Competitors began to arrive at Hat□ðeldabout3.25,and beyond more punctures and one competitor running short of petrol, no stops for motor adjustments were recorded. Brown reported more ill luck with tyres, but motor running well. Hooydonk experienced no trouble at all with his motor, and it was so far remarkable that belt and ignition diīiculties were totally absent. The □ðnalstagewas Hat□ðeldtoHertford, Wades Mill, Puckeridge Royston, and back to Hat□ðeld. This route was the only one where any stiī hills were met with. Thereis a winding drop into Hertford, and then, after passing through the town, a long hill, and again, after Wades Mill, there is a very diīicult hill to Puckeridge.Thisnecessitated slight pedalling with even the higher powered machines. The □ðrstcompetitorsthrough Hertford were Brown, Holmes, Jones and Johns, followed by Reeves,Hooydonk, Silver, Hulbery, Cowles, with only a minute or so between each, all going well. Very considerable interest was now centred at the Red Lion Hotel to await the return of the competitors. Theopen space in front of the hotel was pretty well crowded with motorcars and motorcycles, many prominent riders having run



"The 200 Miles Motor-Bicycle Trials. Two of the competitors on the road."

up to see the □ðnish. The□ðrsttoreturnwas Johns, on his Humber, at 7.37; the next to come in was Jones(tricycle), at 7.39, followed by Vandervelle at 7.44, and Brown at 7.55. The latter reported wretched luck with his tyres, having four punctures in the last 50 miles. Hulbery arrived at 8 o'clock, followed by Hooydonk at 8.1, Silver at 8.3, Cowles and Reevesat 8.4, Holmes following later. A. ovation awaited the competitors, and each group was photographed as it rode up. Each rider handed in to the marshal a card □ðlledinwithparticulars of any stops en route. Thetyres had proved a source of trouble to the majority of the competitors, the road surface in parts abounding in small sharp □ðints,whichpierced the stoutest covers. Thosewho experienced the best luck with their tyres were Leonard Jones, Silver and Reeves,who got through without a stop. HE Cowles rode exceedingly well on his 1½hp. Phoenix, but had one stop for a puncture. Considering the distance accomplished in the day, and the intense heat, none of the competitors showed signs of undue fatigue at the conclusion. It was surprising that no ignition troubles of the slightest were reported, and Jones'sride speaks well for the De Dion-Clement tricycle. Hooydonklost a minute with his spray carburetter, but had not to touch any other part of the machine, which had previously run several thousands of miles. All agreed that the test had proved enjoyable, and others would be looked forward to with interest. Theresult so far is that Jones, Silver and Reevestie, having all got through without a stop, and the manner in which the tie will be run oī will have to be decided by the committee. Thetest made a real good sporting event, and it was conclusively shown that a ride of this nature can easily be carried through without the slightest inconvenience of any kind to the public. But whilst we commend the Motor Cycling Club upon the all-round excellence of the scheme under which the trial was run, we think that they will agree that, arising out of the experience gained on Saturday, certain modi□ðcationswouldbedesirable in future contests of the kind. Thus, the maximum limit of pace might well be increased to 20mph, leaving the minimum at 11. Thiswould shorten the time occupied on the road, and would be a more comfortable pace for the riders. Then, some means must be devised in order that a mere puncture should not put out of the race a motorcycle which was going well all day. Punctures are all a matter of chance, and the mere fact of a pair of tyres going through a long day's journey by no means proves that they were sound or reliable. As a matter of fact, some old tyres went through on Saturday, when brand new ones were getting punctured by □ðints.Moreover,wetakeit, the main object of such a ride (after deciding to whom the awards shall go)is to demonstrate the motorcycle's reliability, but if the report is issued that,

out of 14 starters, only three were able to accomplish the task of covering 200 miles without trouble, more harm than good will have been done among prospective purchasers of motorcycles. This point has been well considered and suitably provided for in the scheme for the forthcoming reliability trials of the Auto-Cycle Club."

The MCC DID indeed go ahead with a series of four reliability trials; having donated a trophy club president SF Edge came up with a cup. For coverage of the fourth round let's switch from* Motor Cycling *to* The Motor Cycle*…

"SATURDAY MORNING BROKE DULL and misty, when at six o'clock eight members of the Motor Cycling Club started on the □ðnal round for the SF Edge Cup. Ten of the previous competitors for these trials had quali□ðed for the □ðnal, but of these Messrs H Fairfax and JH Reeves were unable to be present. The men, who started at intervals of one minute, were: JF Crandall (3hp Humber), F Clarke (2¾hp Werner), HE Cowles (2hp Minerva), BC Holmes (2½hp Vinco, Minerva engine), WR Heighten (2½hp Vinco, Minerva engine), AS Wilson (2¾hp Ormonde), Leonard Jones (1¾hp De Dion tricycle, to which, by the way, he had ingeniously □ðtted a chain drive with great success), and Milligan (2½hp Bradbury). All made an excellent start, and in a few minutes were lost to sight in the thick mist…" Clarke dropped out after 20 miles with a mis□ðre caused by a dodgy accumulator. Crundall retired after lunch with a blocked fuel pipe. Heighton, Wilson and Holmes were excluded for reaching a checkpoint four minutes early. "…Messrs Milligan, Cowles and Jones were now left to □ðght it out. By midday the drenching mist had disappeared and the sun came out, leaving the competition to be continued in glorious weather. At teatime the three survivors duly arrived without a hitch, though Mr Cowles was rather doubtful whether one of his tyres would hold…Towards six o'clock the excitement became great as to who would □ðnish, and whether all three would make non-stop runs. At 6.5pm HE Cowles (2hp Minerva) came swinging round the

"The turning point near Stony Stratford, Holyhead Road, 8am."

corner from the Hertford Road. Fifteen minutes later Leonard Jones (De Dion-Bouton tricycle) and Milligan (2½hp Bradbury) also arrived with several motor cyclists who had ridden the last portion of the trip with them. Each one of these three had come through without a hitch, so it yet remains with the committee to determine how the □ðnal tug-of-war is to be decided. There have now been four rounds for the SF Edge cup, and it is most satisfactory to note how consistently

the machines have behaved. The conditions of a non-stop run can hardly be realised by the ordinary tourist. Imagine the belt requires adjustment—a matter of □ðve minutes or less, an item the tourist would not think of any importance. If any of the competitors in these trials stops for so much as the tightening of a nut, the chances of the cup are lost to him for ever…These trials have been throughout a splendid testimonial to the reliability of the modern motor bicycle. There have been in all three rounds and a □ðnal—30 competitors having taken part in the three preceding contests; ten out of this number made an absolute non-stop run for over 200 miles on give and take roads, and in all conditions of weather. Eleven more actually covered the 200 miles but lost a few marks for minor stops. When it is taken into consideration by the average rider that this minor stop might mean a few seconds for tightening a belt or a few minutes for mending a puncture, which not even the best and most reliable machine can possibly avoid, it will become apparent to him what a splendid test it is both of the machine and rider."

"Messrs Leonard Jones (De Dion tricycle), JF Crundall (3hp Humber), and Milligan (2hp Bradbury)."

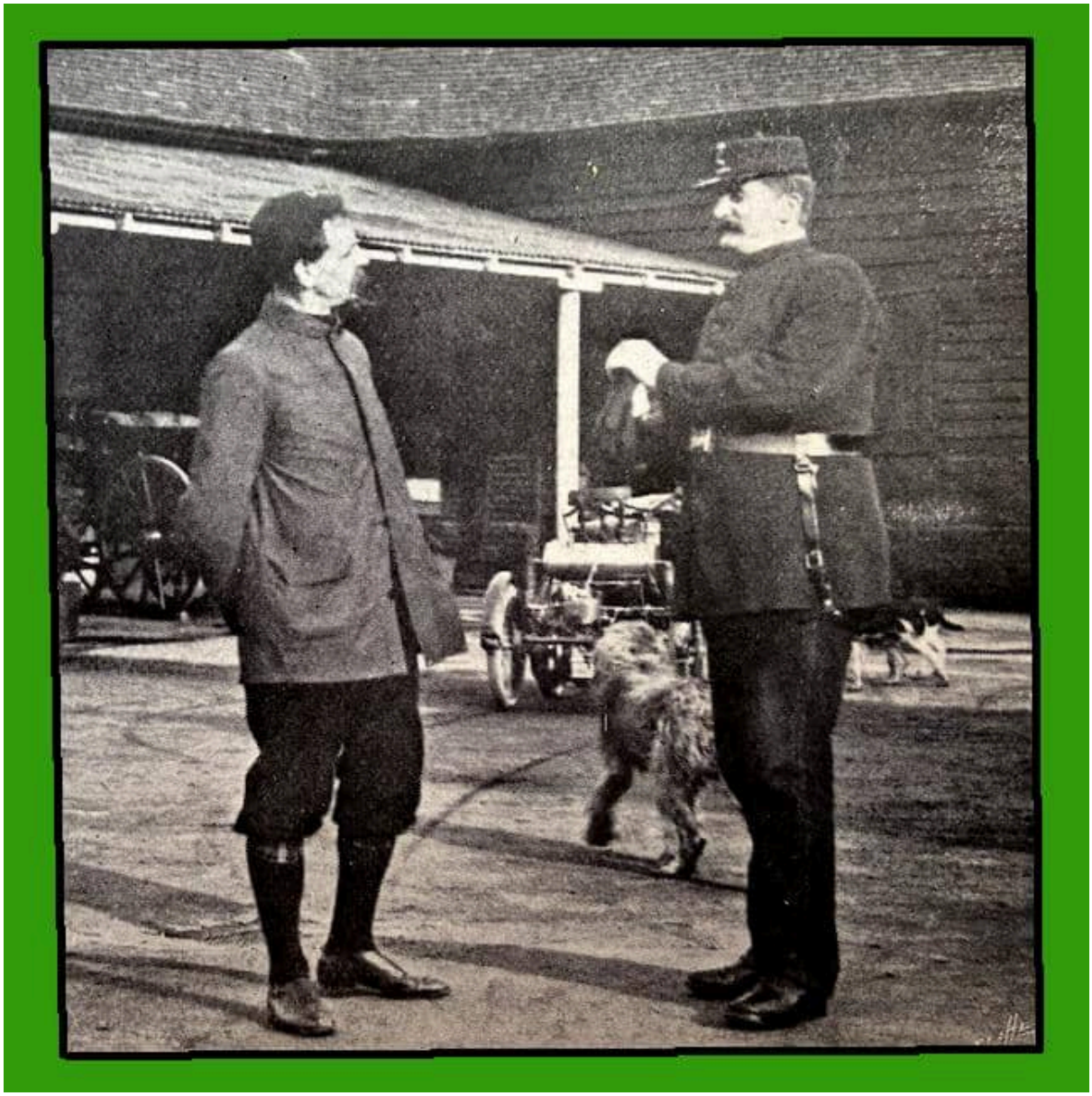
Three riders ĭnished the fourth round without a stop so the MCC staged a ĭnal. One of the three ĭnalists and the timekeeper overslept; a number of marshals didn't turn up. The other two ĭnalists made non-stop runs. Undaunted, the club staged a sixth and ĭnal trial, with the promise that in the event of another tie the winner would be decided on his bike's general performance. **The Motor Cycle's** ***correspondent rode with them…***

THE 200 MILES RELIABILITY TRIAL: THE FINAL CONTEST.

“Mr DK Hall, timekeeper, gives Cowles, Jones and Milligan the word to go at Hat□ðeld.”

“AS WE SPED ALONG the Great North Road through the bitter cold of Friday evening, and saw the moon rising over Hat□ðeld Park, we expected that the Motor Cycling Club would, as usual, be favoured with □ðne weather. The roads were in excellent condition, and as soon as London was left behind greasy patches were few and far between. On Saturday morning at six o’clock the moon was shining brightly, and the cold intense, as Messrs DK Hall and Jackson marshalled the three competitors—Cowles, Jones, and Milligan—in line together with a 10hp Gladiator car carrying the oīicials which Mr S F Edge had kindly lent for the occasion. At the word ‘Go!’ all three started simultaneously with lamps alight and wrapped up as if for an Arctic expedition. All got oī well, Cowles’s machine spitting □ðre through the exhaust box at the □ðrst few explosions in a weird manner. This time the committee decided to alter the course. The □ðrst run was from the Red Lion, Hat□ðeld, to Hockliīe, on the London to Holyhead Road, and back to Hat□ðeld, the men being turned at the 37th milestone from town. The second run was to Hockliīe again, past the Red Lion, and on to the bottom of Potter’s Bar cutting, and then back to the hotel for lunch. Shortly after the start Cowles returned, having had to stop a short distance from the hotel, as the screw holding his main Hilton carrier came loose. By the rules governing this competition each competitor is allowed □ðve minutes after the start fo eīect any slight adjustment, after which he must be started again. Unfortunately for Cowles he came back 13 minutes after starting time, and was disquali□ðed. However, DK Hall started him again, and he arrived at Hockliīe only two minutes after the others. At the end of the □ðrst run all three arrived without mishap. At the time when they were due at the Red Lion at the end of the second round we were requested to check the men at the cutting so hurried oī and duly arrived at the turning point—the second signpost at the base of the hill. After a somewhat tedious wait they all duly arrived,

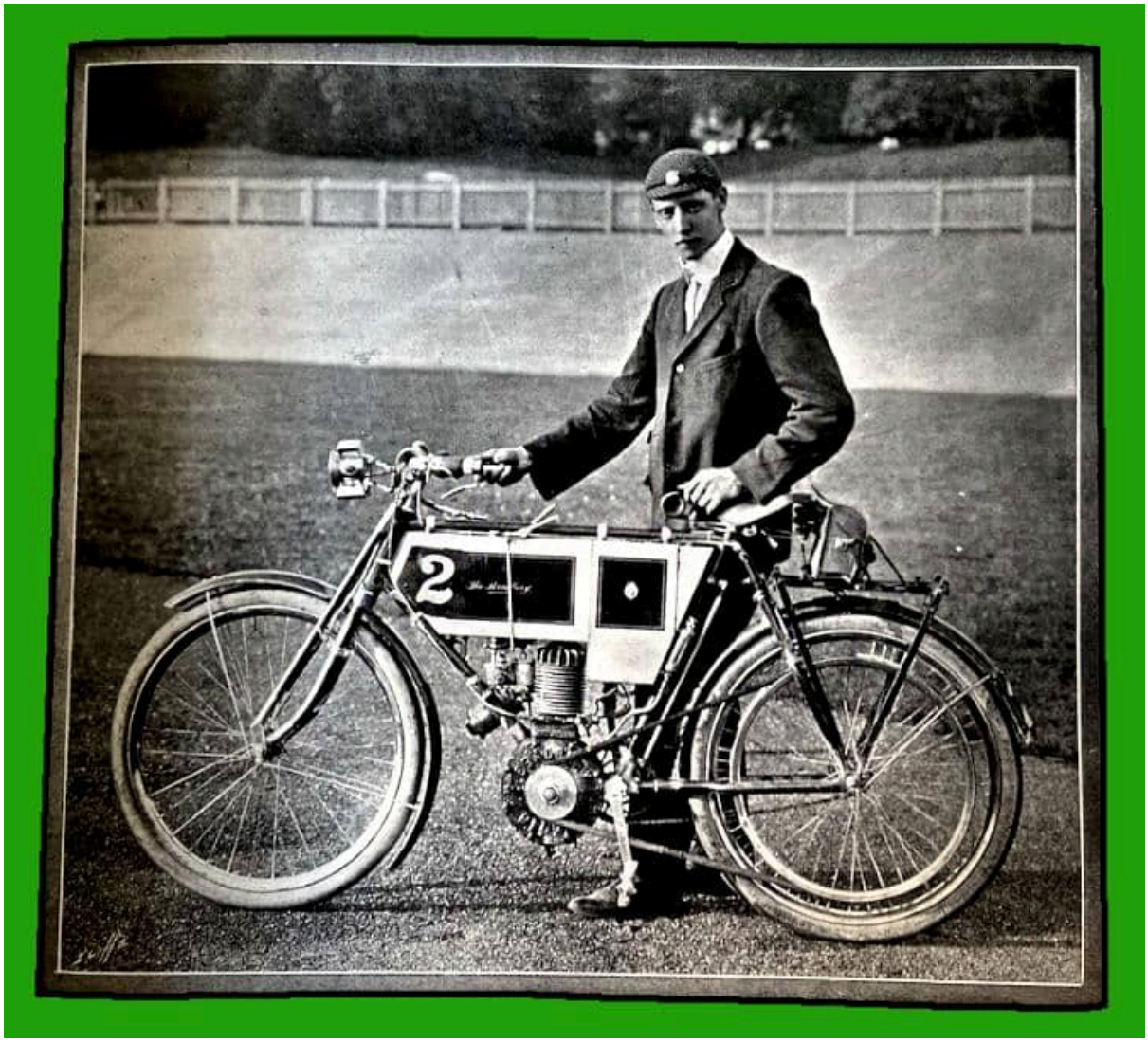
the Gladiator, carrying Messrs CW Brown and Jackson, bringing up the rear. As soon as they had turned we rode back to Hat□ðeld—adistanceofabout four miles—with the men.



“The timekeeper chats with the local police inspector. This oīicer has taken a keen interest in the trials.”

All were going in splendid style, and none up to lunchtime had had the slightest trouble. After lunch a start was made for the third run. This was to [Ivel designer] Dan Albone’s place at Biggleswade, and then again to Hat□ðeld. The number of the competitors was now reduced to two, as Cowles had been disquali□ðed for reasons stated. The day having turned out a glorious one, though still rather cold for motor cycling, we decided to run through with Jones and Milligan as far as Welwyn. The road, save for a short greasy patch here and there, was in □ðne order, but after leaving Welwyn we found new metal in large quantities spread over the whole width of the road. A bicycle could just worm its way through on one side, but the tricycle, owing to its three tracks, had to keep two wheels on the stones. After leaving Stevenage there were no more stones, but two minutes after we left that town we ran into a thick bank of fog of a most unpleasant nature which, had we not been well clad, would have wet us to the skin. This

continued to Biggleswade;and as the greasewas most dangerous in places we found the riding far from agreeable.After a few moments' chat with Mr Albone we set out on the return journey, having heard □ðrstthatthecourse for the next run would be to Hockliīe, back to Potter's Bar cutting, and the, home. A mile or two beyond Stevenagewe again, to the delight of all, emerged into clear atmosphere and bright sunshine. Once more the invincibles came through unscathed. At Hat□ðeldtherewasquite a gathering of interested motor cyclists, several of whom brought quads, to greet us on our return. No interval was allowed for tea, as the men again left for Hockliīe, whence they eventually returned without experiencing any trouble whatever, though one little incident on Digswell Hill almost lost Milligan his chance of the cup. His engine almost stopped, but he found just in time that the vent hole in the tank had become unexpectedly closed. Therun was continued on Monday, Milligan on the Bradbury eventually winning, Joneshaving punctured on a heap a stones near Hockliīe."



"Milligan with his 2½hp Bradbury motor cycle, winner of the 200 Miles Trial for the SF Edge Cup. Milligan competed in □ðveofthesetrial runs before becoming possessed of the trophy, and has, therefore, covered about 800 miles without a single stop for repairs or adjustments of any nature."

The Motor Cycle ***remarked: "We hope the next time the Motor Cycling Club make an attempt to ınish these trials things will be better managed." The MCC's hon sec wasn't going to let that one pass…***

"MY ATTENTION HAS BEEN DRAWN to your report of the attempt of the Motor Cycling Club to run oī the □ðnal trial for the SF Edge trophy on Saturday, October 31st. Your representative would do well in future to make certain as to the accuracy of his information before misleading your readers. My committee are agreed that an adequate number of checkers had been arranged for—nine, in fact, having promised to assist the timekeeper and marshal. Unfortunately, the checker who had agreed to turn the competitors at the □ðrst turning point—viz, Stony Stratford—did not put in an appearance at the appointed place. This was the only disappointment as for as checking was concerned. In what manner your representative considers me responsible I fail to understand, but I am willing and waiting to be enlightened on this point. I am afraid the fact of one intended competitor and an oīicial having overslept themselves must be taken as the real cause of the abandonment, as the other two competitors and my committee are agreed that had the third competitor started the question of abandonment would never have been suggested.

Geo E Roberts, honorary secretary.

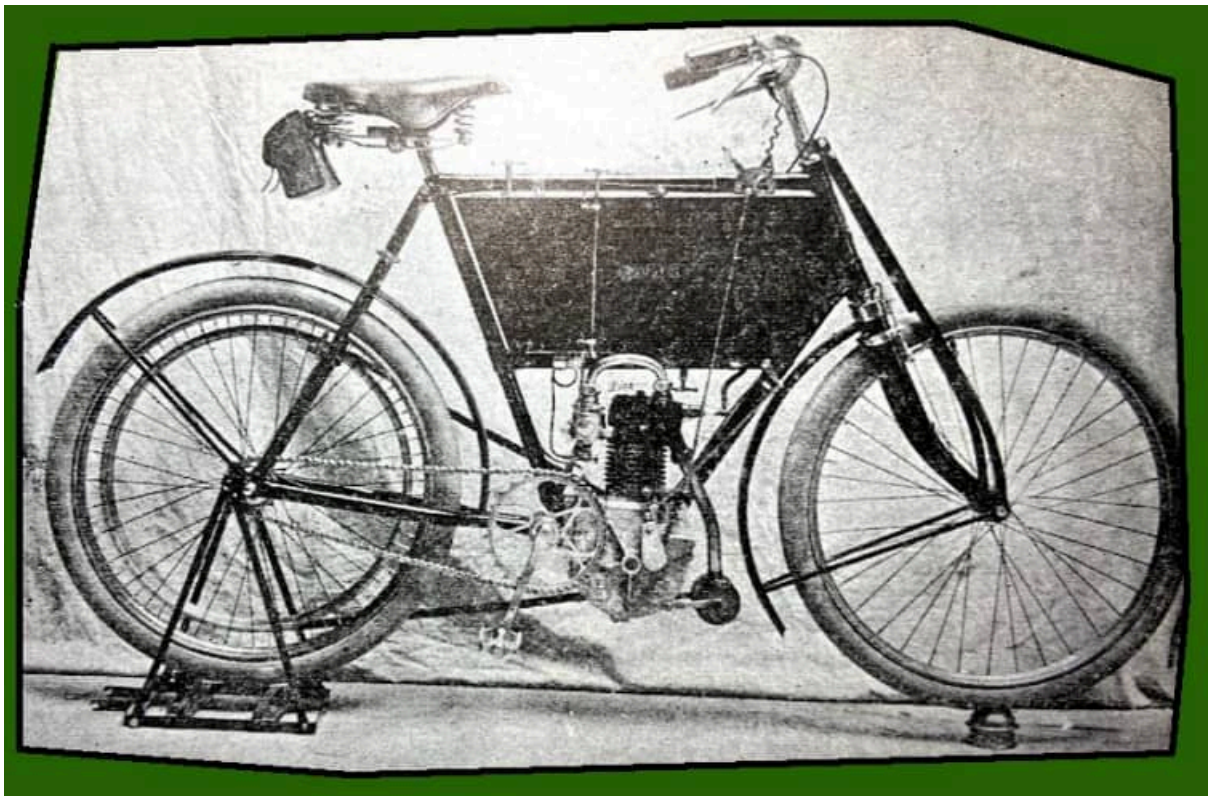
[We publish the above letter not because of any materiel inaccuracy in our report, but to give Mr Roberts, the hardworking honorary secretary, an opportunity to explain his personal connection with the matter. Unfortunately, the fact remains that the competition was postponed, and as this is the case the promoters must take the onus of failing to bring it oī.—Ed.]"

"THE RILEY COMPANY are about to place on the market a new type of motor-bicycle, in which will be embodied all the superior equipment of their 2¾hp machines. The engine is a 2½hp (75x75mm) [331cc] placed in an inclined position, the Longuemare carburetter with □ðoat feed and throttle is used, Basse Michel trembler coils are □ðtted, both coils and accumulators, of which two sets are supplied, being carried in a neat wooden case behind the diagonal tube of the frame. The exhaust valve lifter is operated by a twisting handle and it is practically decided to control both the throttle and the cut-oī from a twisting handle also."

"A TRIAL RUN ON THE 'IRIS' motorcycle. This novel motorcycle. introduced into England by the Iris Motor Co, of Holland Street, Brixton, is notable because of its water cooled free engine. We recently tested one of these machines and can give an account of its behaviour on the road. The machine is rated at 2½hp and we found it easily capable of attaining a very high rate of speed. Harnessed to a trailer (a very comfortable 'Trixo"), with the sparking well retarded, it did its work satisfactorily, pulling for miles at a regular steady speed just under the margin of the legal limit. On hills its power is surprising, the engine retaining its speed to a much greater extent than when air cooling is used. The engine can be started by hand, a pulley and strap supplied for the purpose being temporarily □ðxed to the end of the crank axle. A tug at the strap and the engine starts, but the bicycle remains at a standstill. With the engine running the rider mounts the machine and as soon as he is under way, gently throws in the clutch by releasing a Bowden wire handle on left handlebar. For riding through traīic the speed is regulated to a nicety by using the clutch; thus there is no necessity to run alongside the machine to start and if it becomes necessary to stop the bicycle, it can be done without stopping the engine. The 'Iris' motor-bicycle should become a popular mount."

"THE LATEST PATTERN PEUGEOT' Motor-Bicycle. This excellent machine of French construction has recently undergone many improvements in detail. The motor will develop 2½hp, and is □ðtted with a Longuemare carburetter. There is also an exhaust valve lifter added. The front forks are of

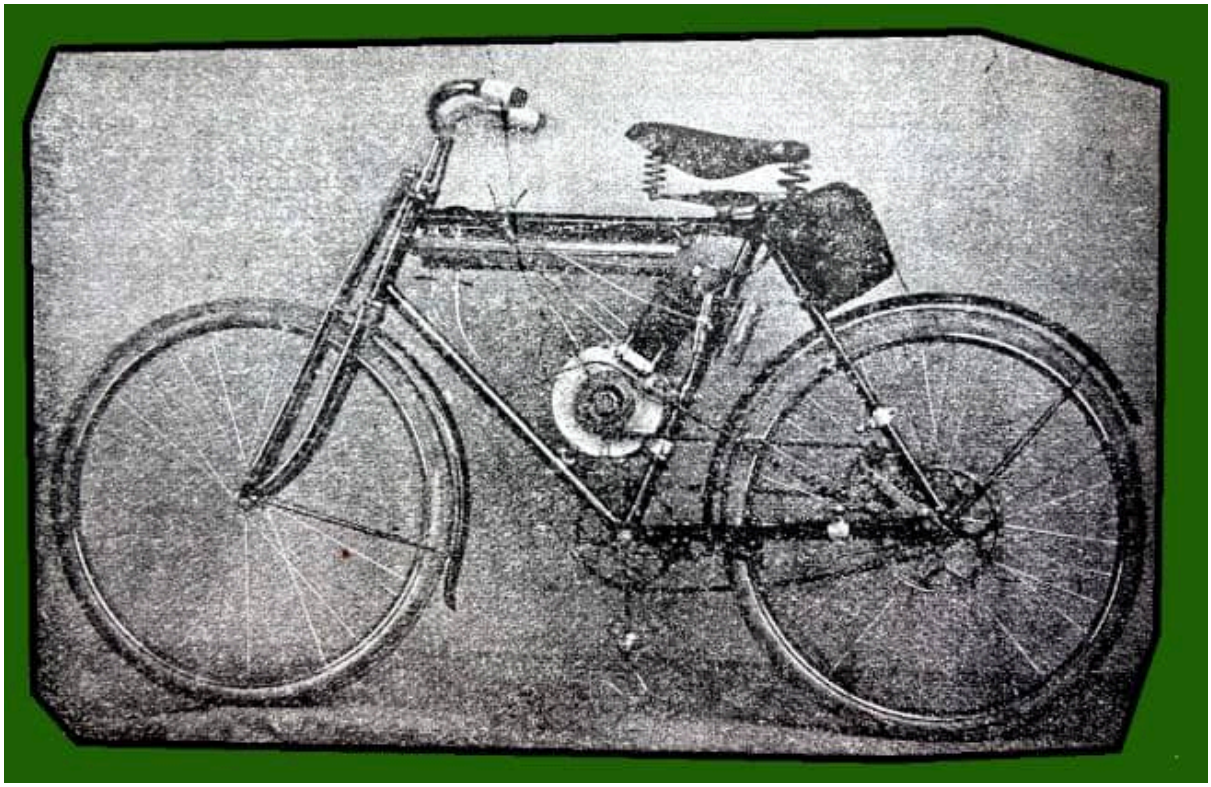
the duplex pattern, and two rim brakes are provided. Transmission is by 'Lincona' belt, and lubrication by force pump. A luggage carrier is □ðttedwhichcan also be used as a stand."



"The Latest Peugeot Motor-Bicycle."

"WERNER MOTORS, REGENT STREET, London, have a strictly limited supply of 3¼hp machines, identical with those that ran in the Paris-Madrid event. Preference will be given to those orders which include a fore-carriage. Th price of the machine is £60. The fore. carriage can now be supplied with the connecting arms from the fore-carriage taken to the axle of the rear wheel, or to the main □öxingboltofthe engine as previously."

"I ENCLOSE A PHOTOGRAPH of a motor-bicycle that I manufacture. It has combined belt and gear drive, neat in design and light in weight. I might mention that a long-distance road race for motor-bicycles (limit 3⅛in bore and 3⅛in stroke) from Warnambool to Melbourne (□ðrstroad event) will be run oī in about four weeks' time.
Edgar Tozer, Swanstone Street, Melbourne."



"An Australian-built Motor-Bicycle."

"LORD BALFOUROFBURLEIGHintroduced Motor-car Bill into the House of Lords last Tuesday. We fear that motorists—even those who have clamoured for legislation—will hardly □ðndthe provisions of this Bill wholly consoling…theBill is suīiciently drastic to satisfy the most prejudiced anti-motorist, and, we fear, suīiciently stringent to aīord a check to the motor movement in this country. Registration and number-ing come □ðrstintheclauses of the Bill as was expected. Thefee for registration is to be □ðveshillings.Thenit is provided that professional drivers are to be licensed, and the usual pains and penalties are duly set forth. At present it is not proposed that amateur drivers shall be licensed, but this omission on the part of the Government has already been subjected to criticism by Lord Rosebery,and it is possible that an alteration may be made before the Bill becomes law. As to the speed limit, this is repealed 'except as respects any special limits or special place to which the section is applied by regulations made by the Local Government Board with a view to the safety of the public on the application of the council of any county or county borough in which the special limits or places are situated'. The □ðrstclausewitha view to the safety of the public on the application of the council of any county or county borough in which the special limits or places are situated." The □ðrstclauseofthe section dealing with reckless driving is ambiguous and unsatisfactory. It provides that: 'If any person drives a motorcar on a public highway recklessly or at a speed which is dangerous to the public, having regard to all the circumstances of the case, including the nature, condition and the use of the highway,and to the amount of traīic which actually is at the time, or which might be expected to be on the highway, that person shall be guilty of an oīence under this Act.' This leaves a policeman too wide a scope, for he can assert that anything 'might be expected to be on the highway',and the last state of the motorist in such circumstances will be worse than the □ðrst.Thepenaltyforan oīence under this Act is to be a □ðnenotexceeding£20,or, in the discretion of the court, imprisonment for a period not exceeding three months…the scope for prejudice is greatly extended, and this is the feature of the Bill which we consider most open to objection…the anti-motoring party…condemnthe

absence of a speed limit, and amendments will be proposed □ðxingaspeedlimit of 20mph and providing for the licensing of amateur as well as professional drivers…Itwas generallythought that this Bill would not apply to motor-bicycles, but it seemsto us that it does. Theexpression 'Motorcar' in the Bill has the same meaning as the expression'light locomotive' in the principal Act, and the motor-bicycle comes under that de□ðnition.Onthewhole we regard the Bill as a blow to automobilism, and if…thelicensing of driversis extended to amateurs, the motor industry of this country, which is just beginningto recoverfrom the eīects of the hampering legislation of ten yearsago, may receive a very serious set back."

"Some of the members of the Nottingham Motor Cycling Club."

"Some members of the newly formed Southern Motor Club, taken on the occasion of their garden party at the Glynn Arms, Ewell."

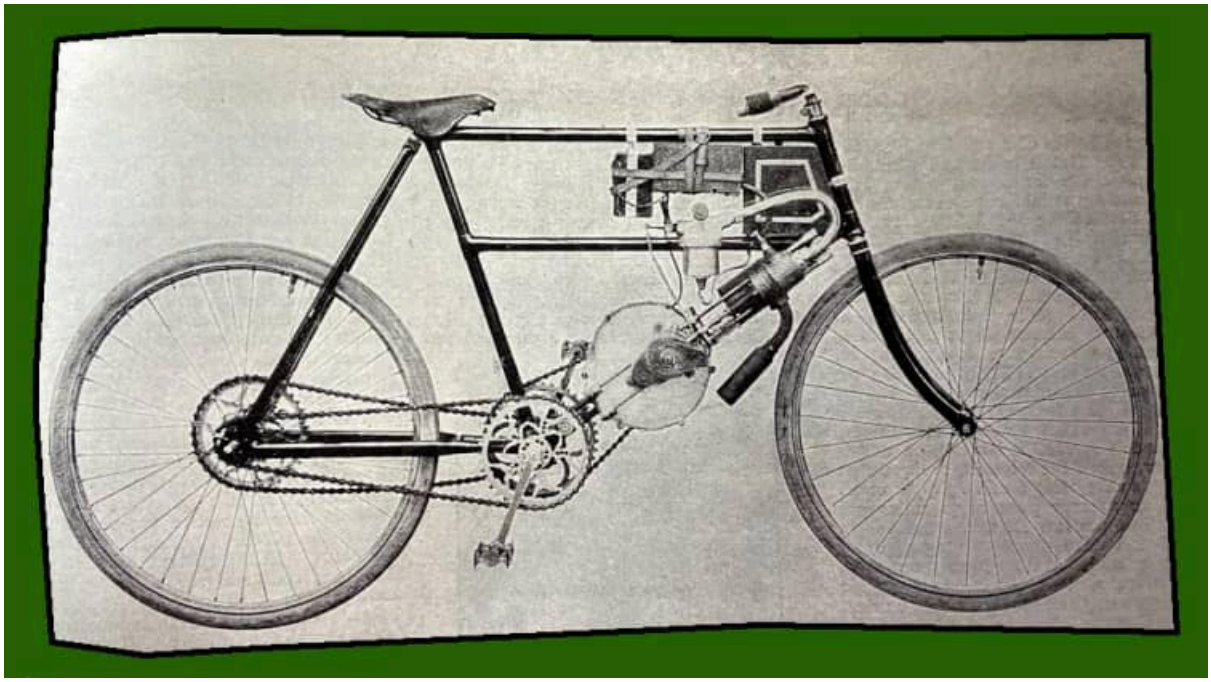
"MOTORCYCLISTSANDTHEBILL.TheMotor Bill as it stands includes motorcycles, as these vehicles come under the de□ðnitionof'light locomotives', and if the Bill passes through without being challenged and amended in this respect a monstrous injustice will havebeen done to users of motorcycles. As the bill stands a motorcyclist is liable to a □ðneof£20foran oīence under the Act, and it is surelythe height of injustice to □ðneanoīenderto the extent of half the cost of his vehicle, or, at the option of the court, to imprison him for three months! Wehave another complaint to oīer on behalf of the motorcyclist. Theenactment that a traction engine with a trailer may not exceeda speed of 6mph is still left open to apply to motor bicycles drawing trailers at the will of prejudiced magistrates. This absurdity should be removed for all time, and it is astonishing that advantagewas not taken of the opportunity aīorded for removing

the possibility of grossmiscarriagesof justice bythe insertion of a short clause exempting motorcycles from treatment as traction engines. Thereis still time to remedythis great injustice."

"OIL LEAKINGTHROUGHCRANKcasejoints. When oil persists in leaking through the joint of a crank case it almost invariably shows that the edgesof the case have not been accurately faced up when □ðttingtogether.Itis sometimes possible to make the joint tight with a thick brown paper packing, or a thick cement of red lead and linseed oil spread on the faces or edgesof the case."

"SPRAYCARBURETTERSSHOULDBEperiodically cleaned out. Thespray carburetter is not likely to giveuniformly good results if it is left to take care of itself inde□ðnitely.Gritandparticles of foreign matter are enemies to eīicient working. Every500 miles the carburetter should be taken apart, taking great care to keep all the nuts and screws safe in a small box meanwhile. A considerable amount of □ðnesandymatterwill be found at the bottom of the □ðoatchamber,and there is almost sure to be some of it in the spray tube. Some carburetters havea small screw cap under the spray, which can be taken oī. A piece of □ðnewireshouldbe pushed up the tube till a clear way can be seen through. The □ðoatvalvemightalso he gently ground in; to do this a little crocus powder is the best."

"AN INTERESTINGRACINGMOTOR-BICYCLEisthat made by Messrs Humber and Co. This comes out at only 70lb total weight. Theengine weighs 31lb, and is a standard 1¾hp size, and it will be seen that it is minus radiating □ðangesonthecylinder. Thetotal weight of the chain gearing(comprising three chains and six chain wheels), frame, coil, tank, accumulator, carburetter, saddle, etc, is only 39lb. Thewheels are 26 inch, with 1⅝ tyres □ðtted,andtheframe has a double horizontal tube. Thismachine provesinstructive, inasmuch as it shows what really can be done in the way of saving weight."



"The New Humber racing motor-bicycle."

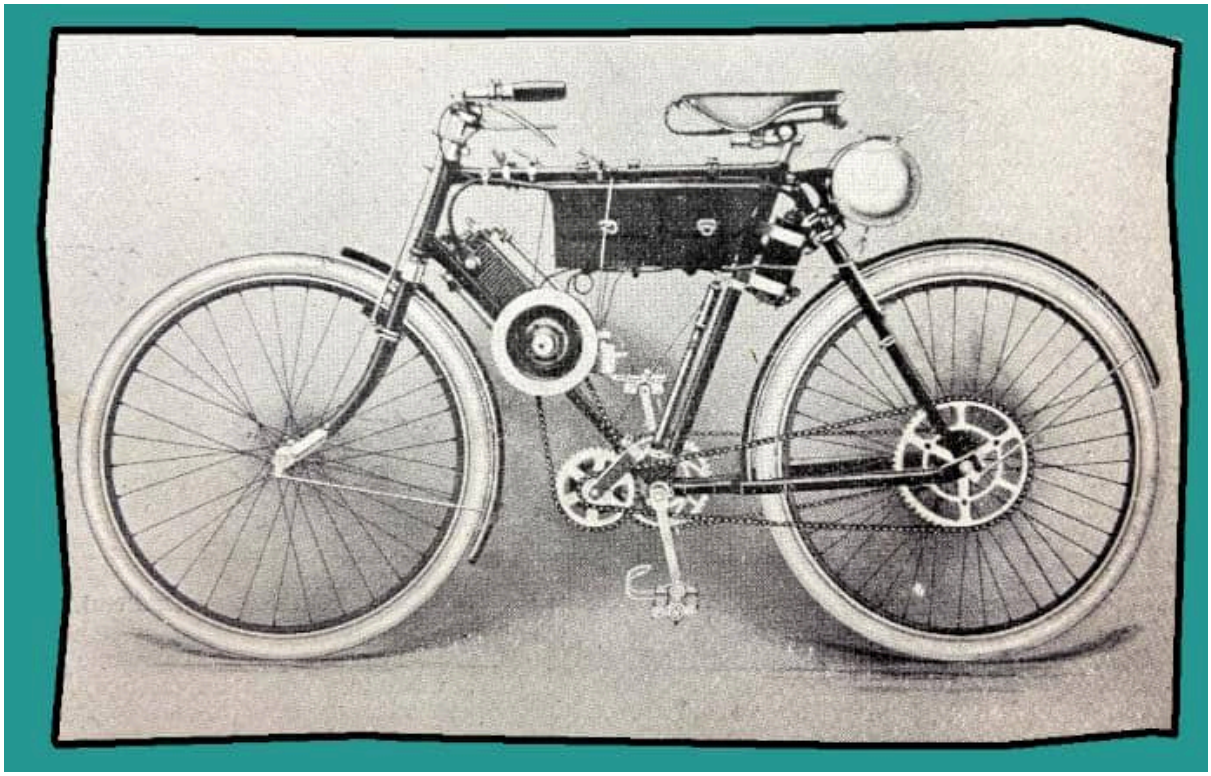
"MESSRS.HUMBERHAVElately placed on the market a 2¾hp chain driven motor bicycle, diīering in a verysmall degreefrom their higher grademachines, at £45, a price which comes

well within the reach of those who require one of the best motor cycles, and who cannot aīord a heavy outlay. The engine is the same as is □ðttedtothe Coventry and Beeston machines, while the carburetter is of their own make, of the □ðoat-feedspraytype.Thereis one accumulator, and a slightly cheaper trembler coil than is used on the higher grades. We cannot speak too highly of the reliability of these motor cycles. Recently we had the opportunity of testing one of them—a 2hp Coventry special. We were remarkably pleased at our experience, especially as we made three non-stop runs from London to Eastbourne, Hastings, and Worthing, on three separate occasions."

"PRIVATETRACKFORTUITIONinMotor Cycling. It will be of interest to prospective motorcyclists in London to know that there is a private track in Leytonstone where tuition in driving can be obtained. The terms are l0s 6d for □ðvelessons,anduse of motor-bicycle and petrol is included in this charge. Car driving is also taught at equally moderate terms. The address is Mr G Tufnell, 527, High Road, Leytonstone, E."

THEMOTORCYCLEINVITEDits readers to submits drawings of their dream bikes—□ðrstprize was to be a brand new motor cycle, with a sidecar or trailer for the runner-up. "…separatedetail drawings may be sent, and when necessary sectional drawings may be made. We are glad to say that many of the manufacturers are taking a great interest in this competition, for although, of course, they are unable to compete—only amateurs being eligible—they are interested for two reasons. In the □ðrstplacetheyhaveno doubt that the ideas of practical amateur motor cyclists will be of value to them. Others think the competition a good thing because it will show the amateur designerhow diīicult it is to introduce improvements into the motor cycle. It is recognised by all that competitions of this kind tend towards the evolution of the machine, and help, in however small a measure, to bring it nearer and nearer to perfection."

"IT WILLBEFOUNDTHATa very welcome change of position from the usual pedal position can be obtained by having a pair of good quality foot rests □ðxedtothefront forks of the motor-bicycle. Theseshould be of good length and very securely clamped on to the forks, because if a rest slips down the fork when one is resting the feet thereon it is likely to upset the steering…see that they are □ðxedascloseupto the crown as can be done with comfort, otherwise the steering is not so sensitive as it should be. A type of foot rest that suits some riders very well is the form which clamps on to the main down tube within a few inches of the crown, but it is not every make of motor-bicycle that allows of this, as the tanks may be in the way, or the wheel base too short to prevent the legs being cramped up."



"A Bradbury motor bicycle with Clement-Garrard engine."

"SIR,—WITHFURTHERREFERENCEtothedescription of the two-stroke engine which appeared in TheMotor, the engine has been carefully tested, and gives 4½hp easily at 500rpm, and runs equally well on petrol or paraīin up to 1,500 or more rpm, at high speed and using paraīin, the air scavenging tap being wide open. It is impossible to back □ðreintothecrank chamber, and the engine runs quite silently, the only noise being the whirr of the □ðywheelgoinground.Thebore of the engine is 4in by 5in stroke [1,037cc], height over all about 2ft, and weight complete with □ðywheelandiron crank chamber about 1cwt. The idea at □ðrstwastomake it to run as a two-stroke engine at slow speeds (about 500rpm) and a four-stroke at high speed (about 2,000). I now □ðnditisnot necessary to make it as a four-stroke, as it runs at any speed you like to advance the sparking to, and there is perfect control of the air and oil admission. Theengine has been built by Mr David Smith (well-known to readers of the English Mechanic), to whom I am indebted for various hints, and also for the perfect silencer. I shall be pleased to show the engine running in London to anybody interested, if they will kindly give me three or four days' notice. Theengine is patented in England, America and on the Continent.
ThosKelly, 2, St John's Villas, Sutton Road, Southend-on-Sea."

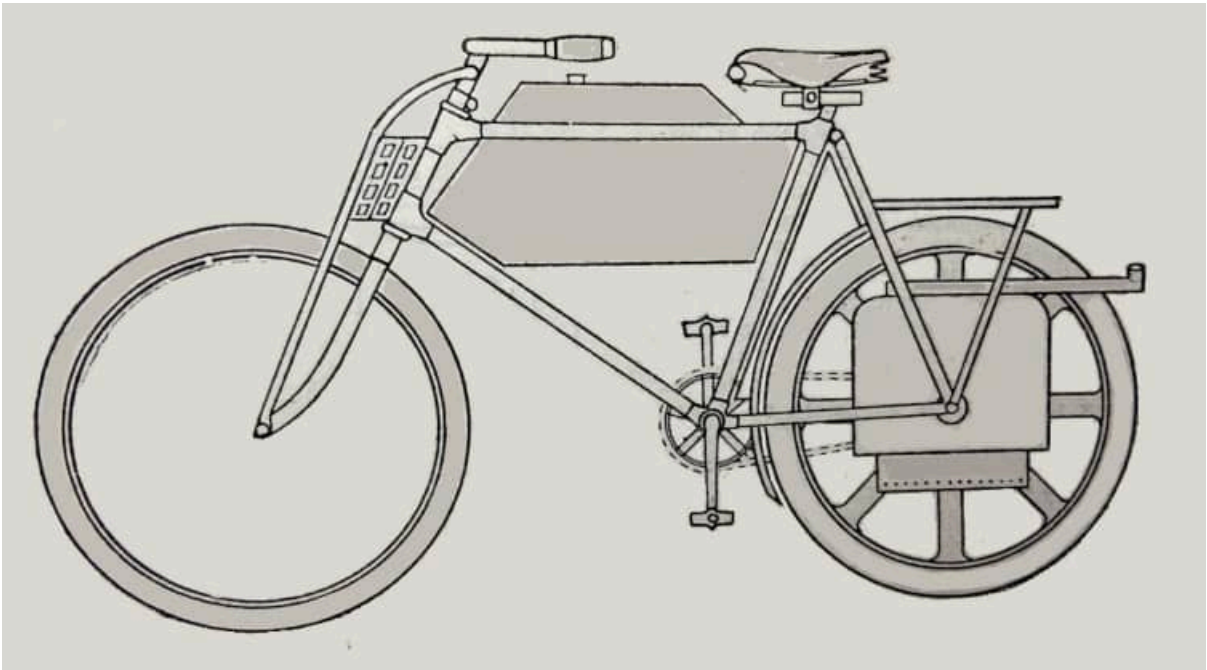
"SIR,—THEPOLICEHAVEtaken the village of Min□ðeldundertheir wing. It would therefore be well for motorists not to exceedthe legal limit goingdown this hill, which lies between Hastings and Eastbourne.
'Switch'."

"SIR,—APOLICETRAPExistson the Bath Road here, between the milestone at the top of Castle Hill to the turn in the road. A private resident is doing all he can to aid the police. Another trap is when entering the town from London, from the toll gate over Maidenhead Bridge as far as one can see. Thepolice are very vigilant; though, to do them credit, I know several of them dislike 'man hunting', and some of the borough magistrates vie with each other in their fanatical desire for anyone's blood who happens to possess a motor. It behoves every motorist to be very careful

within the con□ðnesofMaidenhead.
‘A Correspondent’, Maidenhead.”

“SIR,—IN ANSWERTOyourcorrespondent, re ‘Sociable’ experiences, I have had a Sociable attachment, made by Graham Bros, of En□ðeldTown,sometwo months. I □ðnditmuch safer and easier to steer than an ordinary tricycle, and conversation is a pleasure instead of an eīort. I can take my attachment oī or put it together easily in □ðveminutes.Iconsiderit far preferable to either fore-carriage or trailer, both of which I have had.
‘Another Reader of The Motor’.”

“SIR,—I READWITHPLEASURE theletter in a recent issue, signed by HR Ricardo, in which be describes his ingenious and (in my opinion) practical idea for a steam driven cycle. Its only fault seems to be the rather ugly appearance of the back wheel. I beg to send a sketch of an alteration in the design which I think would remedy this. One great advantage not previously mentioned, is that whereas petrol and charged accumulators can only be obtained at certain centres, paraīin and water can be procured at almost any little village in the British Isles. This certainly makes the steam motor-bicycle an ideal machine for the tourist. Why could not a few of those interested in steam cycles get the capital required between them and get some □ðrmof engineers to manufacture the machines as the orders are booked, and so place a much wanted machine on the market?
Victor Nightingale.”
You’ll meet Harry Ricardo again in 1915, 1917, 1921 and 1922 and there’s a summary of his astonishing career in the Gallimaufry.

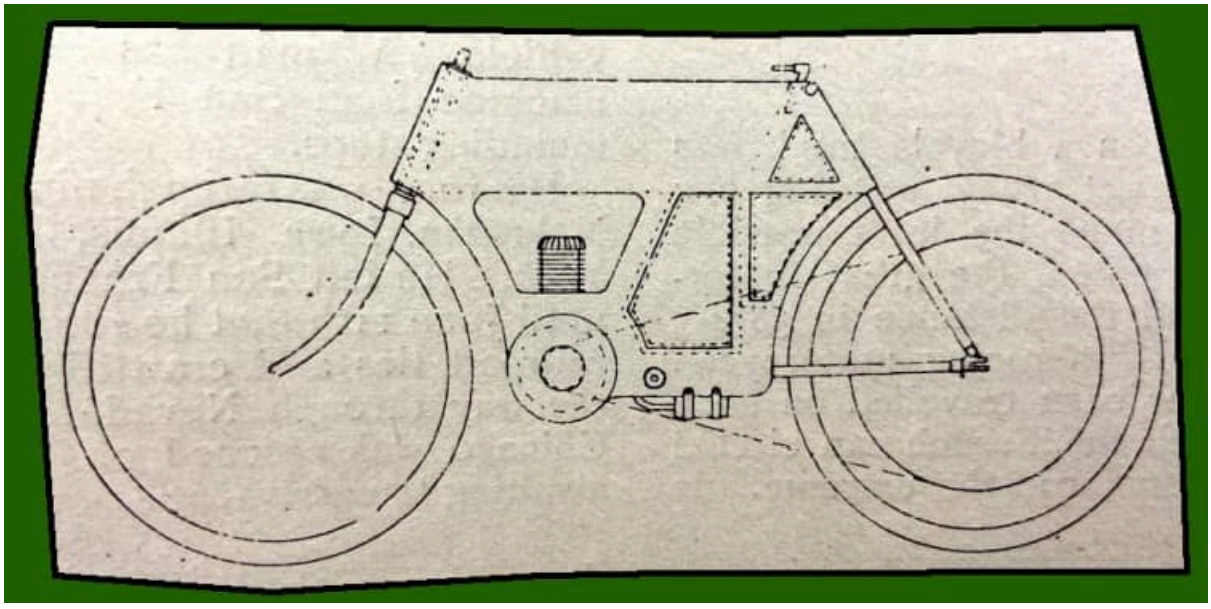


“Illustrating letter from Victor Nightingale.”

“AS IT SEEMSLIKELYthat the □ðneandsunnyweather so long due to us has at last arrived, it is probable that some of our readers may be thinking of camping out this month, or later in the summer. If so, we think they will be wise if they purchase one of the camping out□ðtsdesignedby Mr TH Holding, of 7, Maddox Street, W. That weight has been cut down to the lowest point possible will be very apparent when we quote from the catalogue that a tent can be supplied

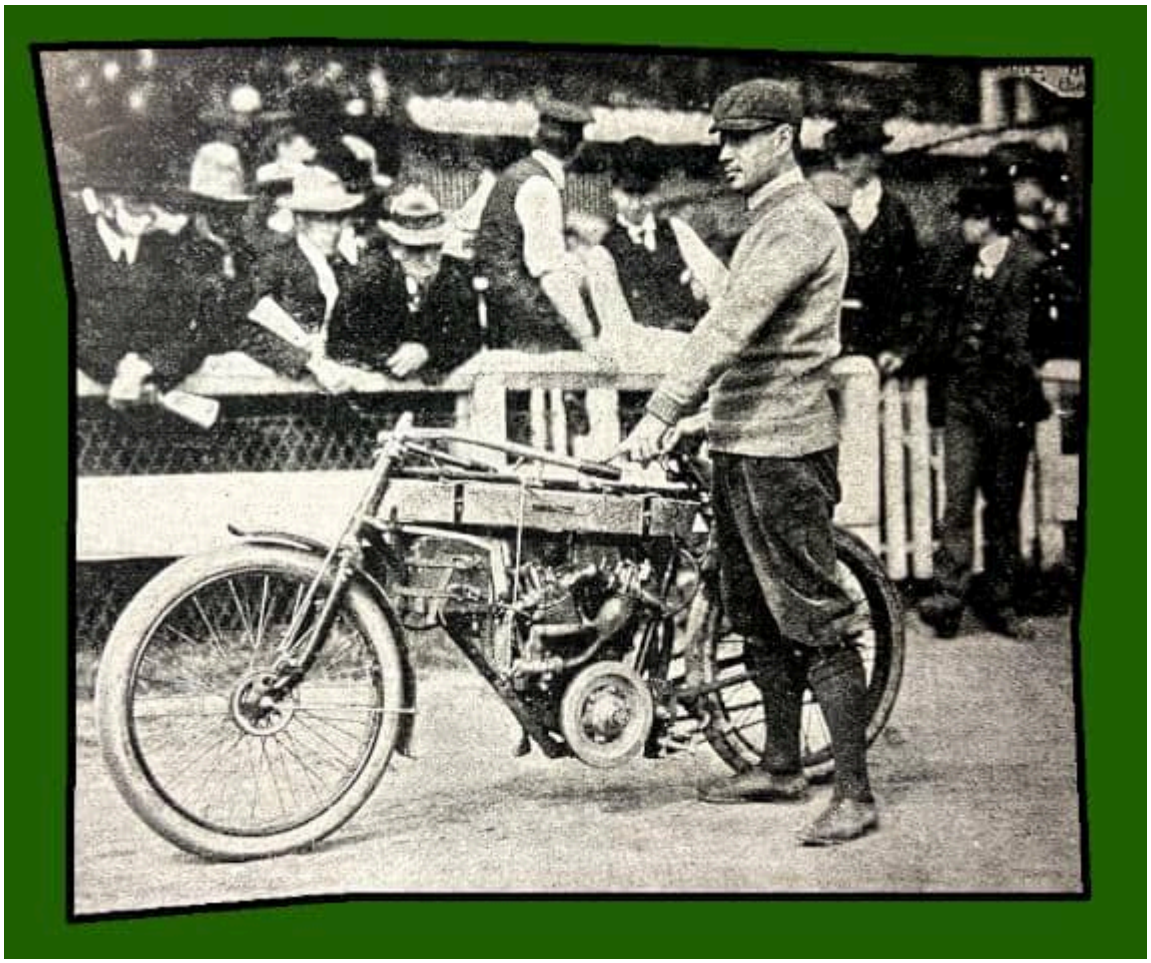
weighing from 11oz. to 2¼lb, thus bringing them well within the carrying capacity of a motor cycle."

"THE FOLLOWING IS A DESCRIPTION of a motor-bicycle frame, constructed, as far as possible, of sheet metal, in such a manner as to provide ample accommodation for petrol and oil supplies, coil, tools and equipment. We are so accustomed to see frames constructed entirely of tubes that no one seems to have thought it possible to use anything but tubes; and undoubtedly there is good reason for this, considering their strength and lightness, but a tubular frame, in the writer's opinion, is inconvenient for □ðxing engine and tank to, and limits the size of the latter too much. As will be seen by a glance at the diagram, the writer's idea is to make the middle part of the machine from sheet metal and only have the back stays and front forks made of tubing in the usual manner. Special lugs for connecting the back stays to the sheet-metal frame would have to be designed, which would be a Comparatively simple matter. The steering head would pass through the front part of the petrol tank, and the top of the tank could be curved up a little, so as to be at right angles to the centre line of the steering head. This would enable a good gas-tight joint to be made. The front part of the tank could either be square or form a semi-circle round the front of the steering head. The distance between the sides of the frame is just enough to allow the crank case, without the end covers, to □ðtin, the end covers being □ðxed on the outside of the frame by bolts passing through them and the sheet metal. The case thus grips the sheet metal frame on each side between the crank case and covers. A circle is cut out of the frame to correspond with the inside diameter of the crank case, so that □ðy wheels or shaft can be passed through in □ðxing the engine in position."



"A MILE IN LESS THAN one minute on a bicycle track was made, and a new world's record was set when, bending low over his handle bars in order to make the least possible resistance to the

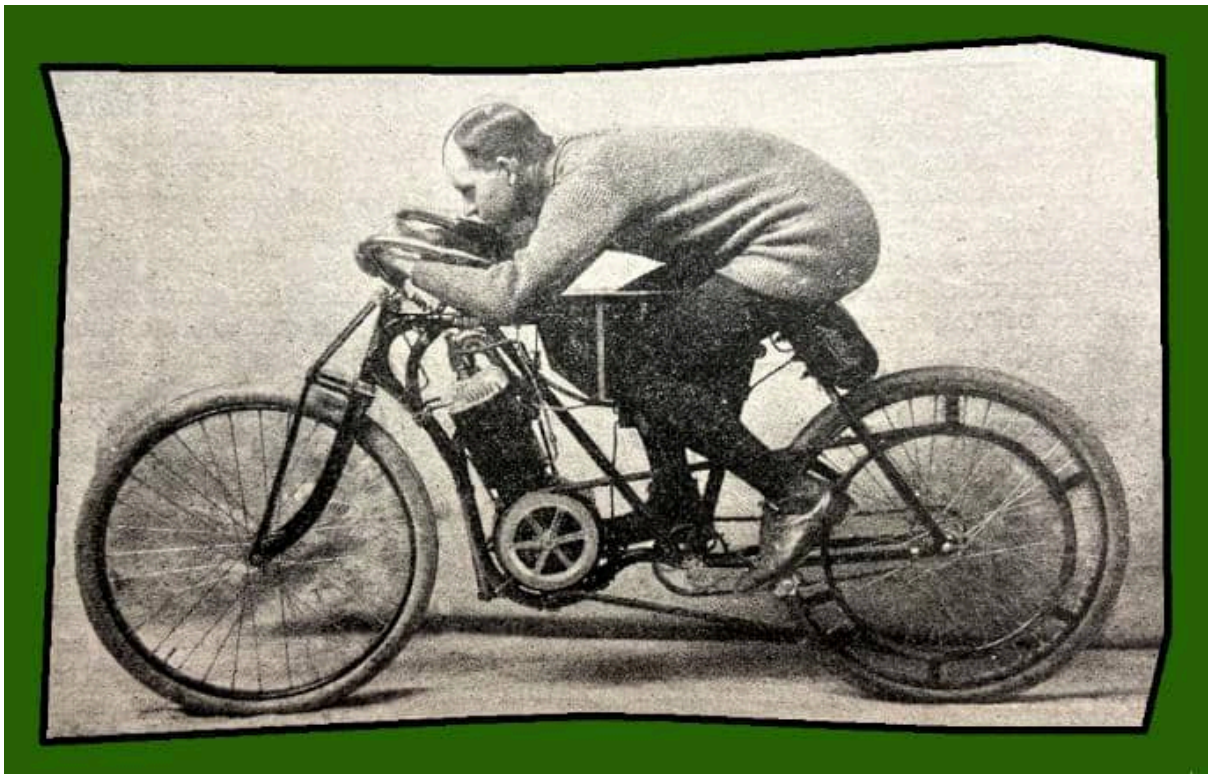
wind, Albert Champion, the great motor-cyclist and pace follower, travelled the distance in 58⅘sec at Charles River Park on his racing motorcycle. This is the fastest mile that has ever been travelled on such a machine, and the manner in which the Frenchman circled around the □ðve-laptrackwasspectacular in the extreme. It was a hair-raising exhibition of masterly management and of speed. He was in and out of the stretches almost instantaneously, and to the spectators looked as if he was □ðyingthroughtheair rather than following the smooth board surface of the circular track. Themachine used by Champion was a long, 14hp four-cylindered aīair, with a wheel base as long as the old tandem machines, and requiring handle bars about □ðvefeetlongandbent almost semi-circular in the middle to enable him to grip them tightly. The motor is placed between the wheels, and in a position to give it an even balance. His management of the machine was perfect, and the ease with which he followed the black line at the pole of the track was a marvel to those who witnessed the feat. It took him but three laps to get warmed up to his work, and then he was oī like a rocket in his endeavour to beat the mark of 1min 3sec, which he established on the same track last Tuesday night. Before people could realise how fast he was travelling, it was all over, and when the time was announced the spectators simply went wild."



"Albert Champion and the machine on which he rode a mile in 58⅘sec."

"WHEN AA HANSEN, OF Minneapolis, started after the 24 hours motorcycle record, he hardly expected to better the cycling record of 624 miles, held by A. E Walters, the Englishman. His was the □ðrstattemptonthe record for twice round the clock for a mechanically-propelled bicycle, and he hardly knew the powers of the machine for such a journey. He had expected to reach the 600-mile mark, but thought the Walters' record a little too far for him. Therefore, when

the sheets showed 634 miles 75 yards at the completion of the grind, Hansen and his friends were greatly elated. In making the record he averaged 28mph, not including the stops at the end of each 100 miles to reload the gasolene tank and to eat a bit. Hansen rode his □ðrst century in 3hr 15min 57sec, which completely casts in the shade the road record of 4hr 28min. For 200 miles his time was 6hr 54min 56sec, as against the road mark of 8hr 35min, which shows how much superior the track is to the road for record riding. The 500 miles were covered in 19hr 35min 11sec. Hansen claims that if the electric lights had not been turned oī at night he could have beaten 700 miles. At that time he was left in darkness and was afraid to take any chances going at such a high rate of speed and consequently had to slow down, losing many valuable miles. He rode a bicycle equipped with 2hp, and carried the colours of the Congress Cycling Club."



"A A Hansen, holder of the World's 1,000-mile and 24-hour record, on a Mitchell 2hp motor-bicycle."

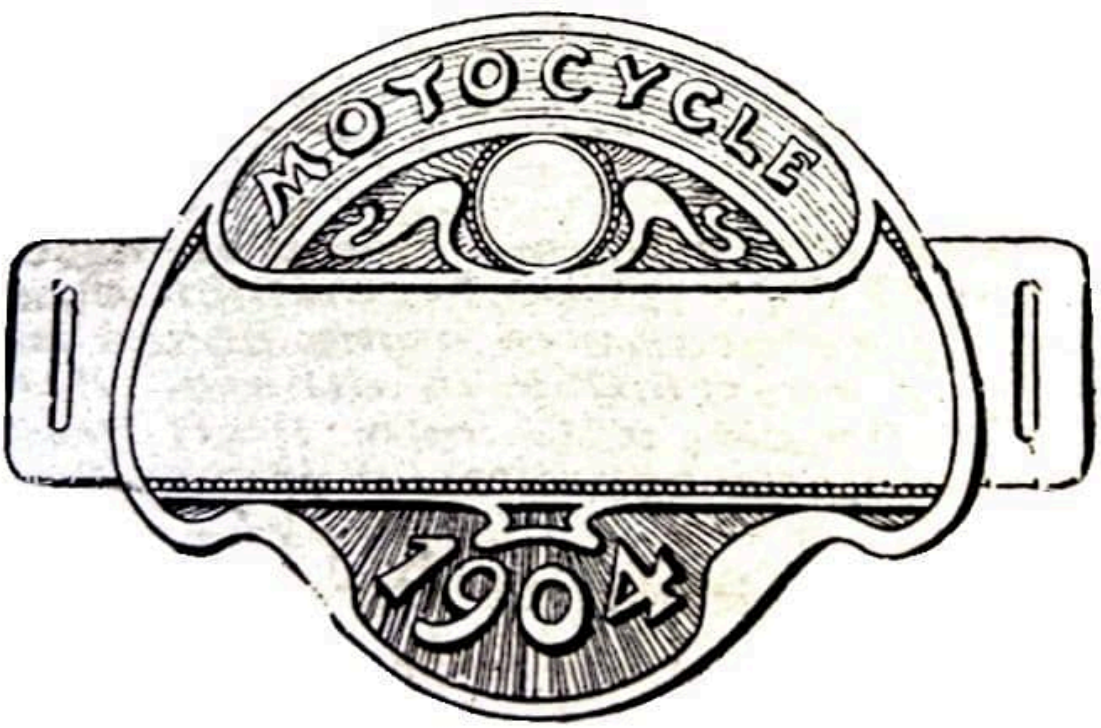
"MOTOR CYCLE NUMBERING IN USA. The Massachusetts Highway Commission have experienced some diīiculty in determining exactly how motor-bicycles should be labelled to comply with the new regulations. It was at last decided that every machine should carry a number on the headlight and saddle. The numbers will run from 1 to 9,999 and then a new series 'A' will commence from 1 to 9,999."

"A CORRESPONDENT SENDS A LONG a cutting from a Yorkshire paper, which records the utterances of a clergyman in supporting a resolution to protest against the Motor Bill. He said that personally he had a great objection to 'the Johnnies who endanger life and limb of the public, and who are pushed about by half a-pint of petrol, and who are seated upon an odoriferous half ton of scrap iron.'"

"A MEMBER OF PARLIAMENT has received the following extraordinary communication from the Vicar of Hurley, Berks: 'It is my full intention to decline in future to vote for any candidate for Parliament unless he pledges himself to go in for the total abolition of all motors. There is no

language of any sort half strong enough to express my detestation of these damnable engines of Satan.'"

"MOTOR CYCLES RENDERED SUCH very valuable service to the Automobile Club during the Gordon-Bennett race that the War Oīice have quite awakened to their extreme value in war time. They are oīering 10s a day with petrol to motorcyclists who will take part in the forthcoming military manoeuvres, which take place on September 5th-12th. All those motorcyclists who are willing to act as temporary oīicers of His Majesty should communicate, without delay, with the secretary, Auto-Cycle Club, 119, Piccadilly, W. It is not necessary to be permanently enrolled in this smart Volunteer corps in order to take part in these manoeuvres, but it is hoped that it will lead to a very large permanent increase in this useful body. The War Oīice are applying for any number of men."

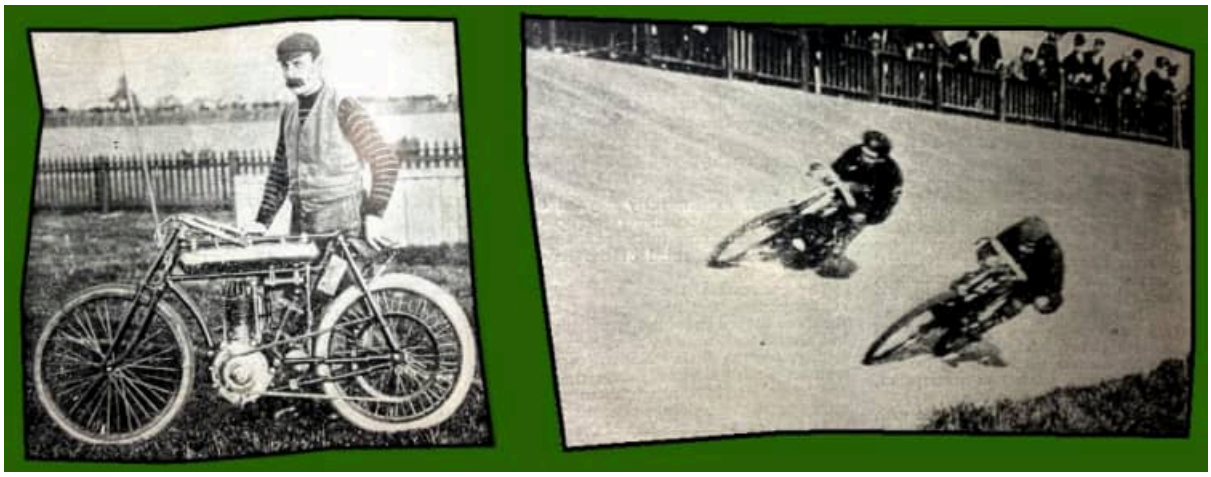


"The french authorities in hitting out new designs for the 'plaque', which every cyclist in France is compelled to carry, have decided to issue a distinctive tablet for motorcycles. Our illustration faithfully portrays the character of this special design. The new plaques will be issued from January 1st, 1904, ie, after the expiry of the present year's licence. "

"NOW THAT SO MANY motorists will be touring in France and running on to Paris, it is well worth remembering that there is a splendid collection of motor relics, from Cugnot's old road-carriage down to De Dion's experimental machines, to be been at the Musée des Arts et Métiers, which is convenient to the centre of the city, and open all day. "

"T TESSIER, ON HIS 2¾ HP BAT, travelled well at Canning Town on Bank Holiday; in fact, he eclipsed himself, paradoxical as that may appear to be, in the □ðvemiles handicap. During his heat in the race he beat the world's record for the □ðying mile, his time for the journey being a min. 4⅘sec. This was ⅕sec better than the previous record. Later on, in the □ðnal, which he won somewhat easily from JF Crandall, he went one better, by riding the □ðying mile in 1min 4⅖sec, which was ⅖sec better than his eīort earlier in the afternoon. His full time for the □ðve miles was 5min 44⅖sec. A three-mile motorcycle race between H Martin and JC rundall resulted in a win

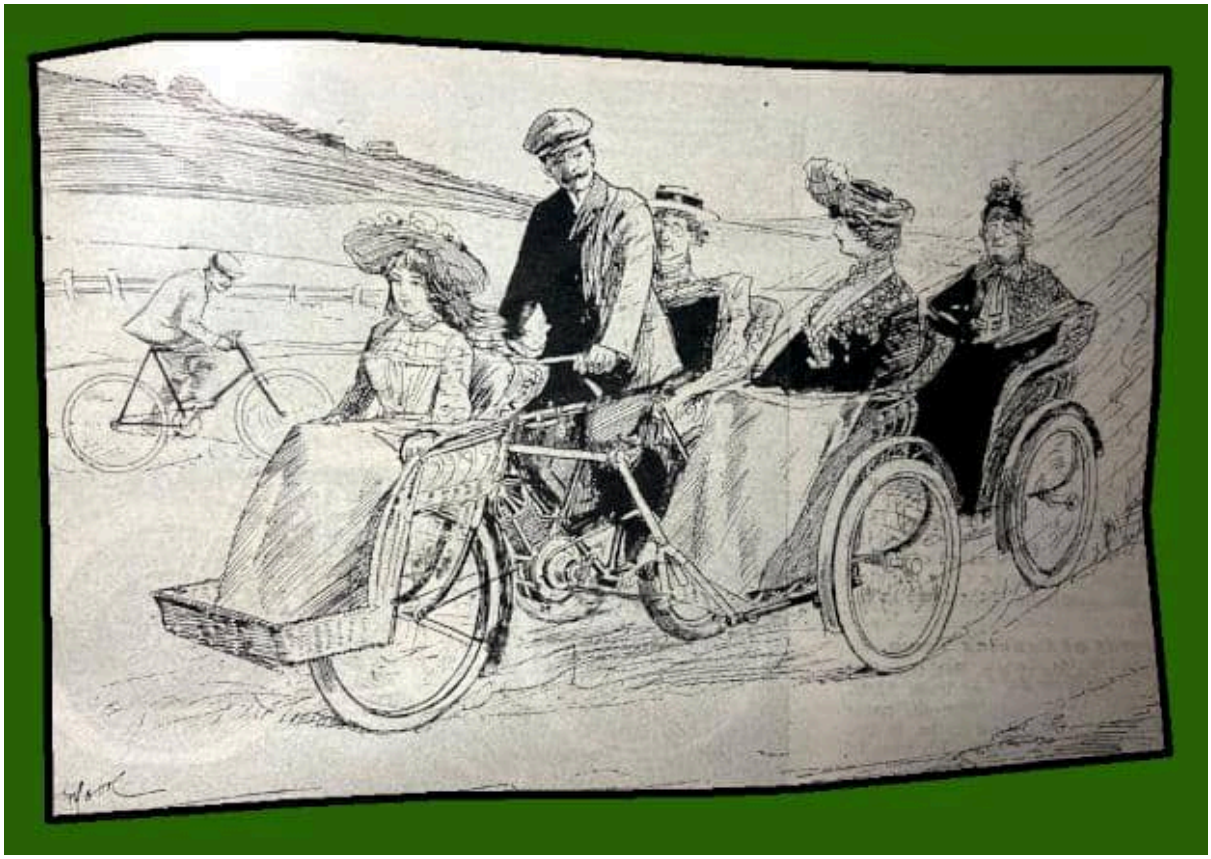
for the latter by a quarter of a lap, in 3min 25⅕sec. Subsequently the pair contested a mile match, and this was won by Martin, only by the very narrow margin of half a length, in 1min 9⅘sec. Both events were contested from a □ðying start. The motor races were watched with the keenest interest by some 7,000 with the weather being of a glorious summer character. ”



“T Tessier, who twice beat the □ðying-mile record at Canning Town, on Bank Holiday.” (Right) “An exciting moment. Martin and Crundall racing neck and neck on the banking at Canning Town on Bank Holiday.”

“FOUND: A V-BELT. We have a letter to hand from Mr A Overton Jones, Struan, Fassett Road, Kingston-on-Thames, in which he states that he found a V-belt oī a motor-bicycle on the road just outside his house on Thursday, July 16th. He will be pleased to return same to the rightful owner if he will communicate with him.”

“IT NEVER PAYS TO venture out for a long ride on a motor-bicycle without seeing that the toolbag is well stocked: (1) a spanner of the adjustable type, and it should be tested to see that this will take any nut on the machine; (2) a pair of □ðat-jawed pliers, with cutters for wire; (3) a couple of screwdrivers, one having a wide blade, say, ⅜ in., and the other a narrow one, 3⁄16in; the handles can be quite short, but preferably broad, so as to get a good grip. With these two screwdrivers it should be possible to reach every screw about the machine. (4) A small but good quality □ðle, round on one face and □ðat on the other; this should be of a medium cut and about 4½in long. (5) A piercer, or belt awl—better, in the writer’s opinion, than a punch. This should be made of a good piece of steel rod, well sharpened and tempered, and □ðrmly secured in a short handle. A penknife is also indispensable, but it is to be supposed a rider will always carry one.”

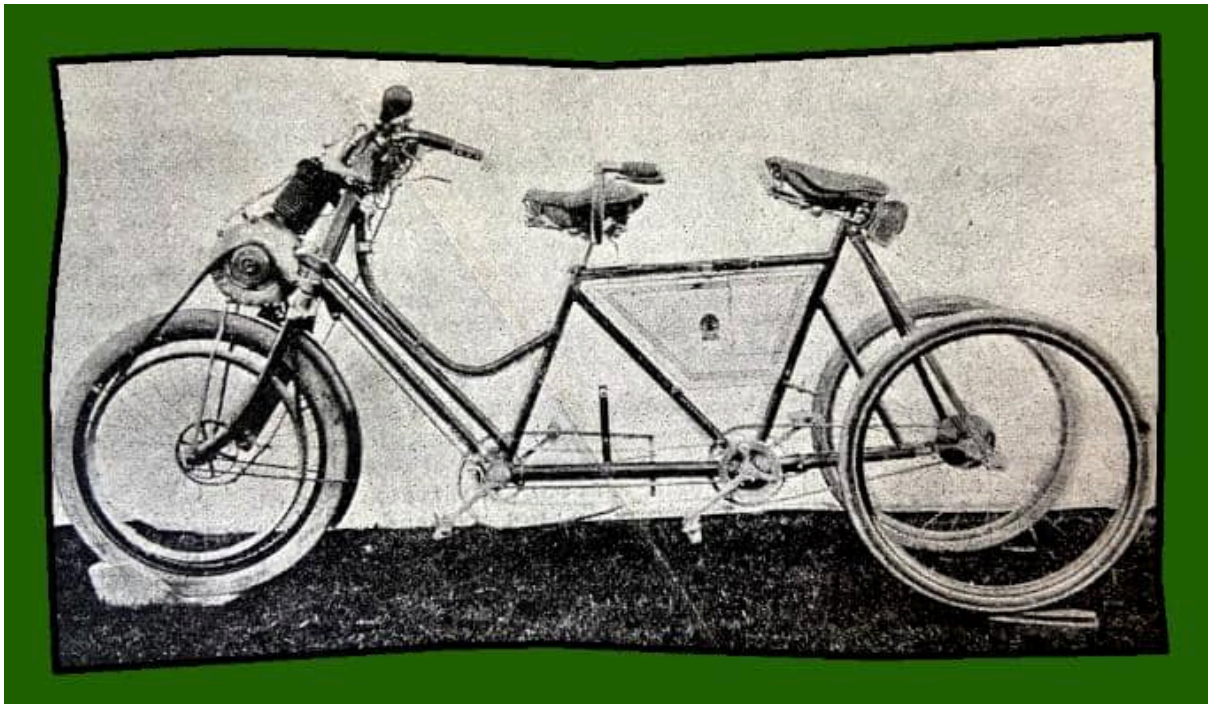


"That side attachment—or double side fore-carriage cum trailer. Brown is a man of method—he cannot aīord a car, but, by borrowing some trailers, he rigs up something of this sort, and is able to take out the girl of his heart, and at the same time charm his prospective mother-in-law and spinster aunt (both very rich), and be on good terms with her younger sister."

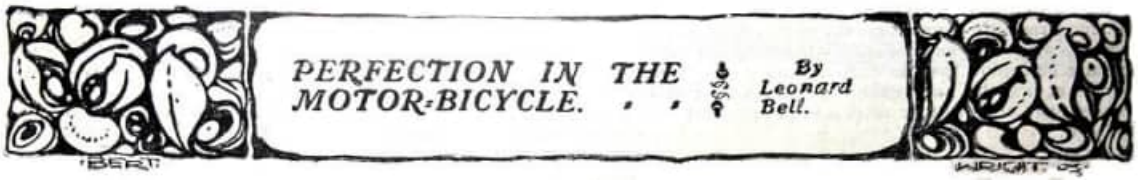
"SIR,—I OWN A HEAVY 2¾hp machine, weighing, I suppose, 150lb. I □ðnd it a most perfect mount for traīic work, and always use it for short runs into Cardiī and about the town, in preference to an ordinary pedal-propelled machine. To show its handiness, I had occasion recently to come through Merthyr on a Saturday night. The main street is very narrow, there is an electric tram line down the middle, and it was packed with people from pavement to pavement. Imagine trying to ride down the pavement of Oxford Street or Piccadilly and you have it. There were a lot of bicyclists about, and every one of them dismounted and walked. I, with my heavy machine, rode the whole way without pedalling a yard, just switching on the engine for a few seconds whenever I saw a chance, and went the whole way without touching or frightening a soul. This, I think, speaks pretty well for the handiness of a hefty machine. On the open road one can go gaily ahead, and never fear the many and steep hills hereabout. The weight is certainly a nuisance t carry up steps, but then one keeps a motor-bicycle to ride, not to keep on the mantelpiece as an ornament.
CRWA."

"SIR,—AS I THINK many of your lady readers who would like to become 'motorists' may be interested in my experience, I am sending you a photograph of our tricycle, to which we have lately had a motor attachment □ðxed. We got the idea from a letter which appeared in your paper from Mr Tatchell, of Bristol, who had a motor attached to his tandem bicycle with very satisfactory results by Messrs Morrish and Co, of Redcliī Hill, Bristol. We at once consulted Mr Morrish, who advised a 2½hp Minerva motor, □ðtted with Lincona belt, and a surface carburetter of his own make, a new front wheel with Palmer motor tyres, new forks, and the frame

strengthened. I learnt to drive it in one lesson. My husband being totally blind, the entire control and management rests with me. We have now ridden between 600 and 700 miles, and have found it a complete success; the steering is very much easier than before. Everyonewho has seen our machine has endorsed our opinion that it has been very cleverly thought out, both for safety and simplicity. It is a most delightful way of getting about. We have had the machine geared low, as we do not go in for fast riding, safety being the □ðrstconsideration.
(Mrs) MA Tuckett, 4, Prior ParkBuildings, Bath."



"Tandem motor-tricycle referred to in the letter from (Mrs)MA Tuckett."

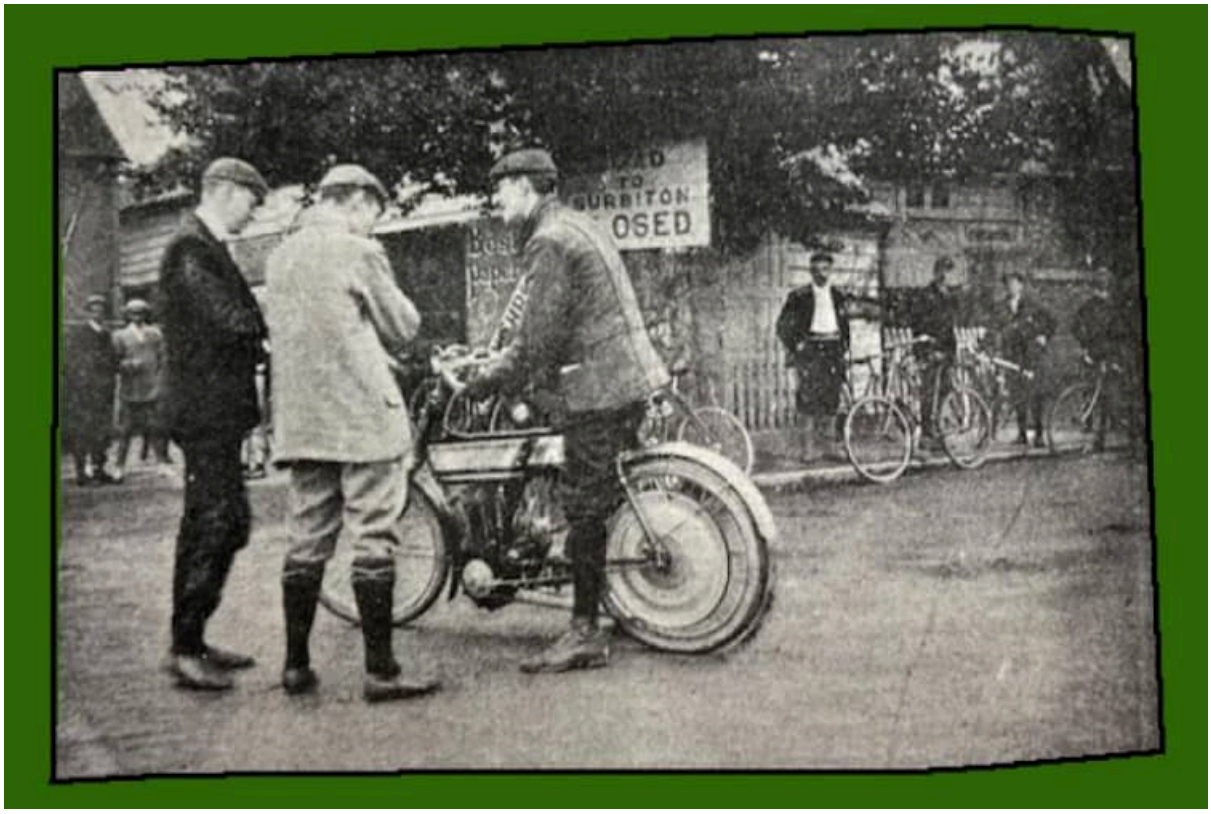


"IT IS NOTMY INTENTIONto keep the mind of the reader □ðxedonanyparticular make of motor-bicycle, but rather to let the results be deduced from a generalsurvey and criticism of the many excellent motorcycles at present on the market, and to suggestvarious improvements on such as have been found to be valuable from past experience. With regard to the cycle…thatthe wearing parts should be of ample strength, the tubes of heavier gauge,the spokes and rims of stouter material, goeswithout saying. More comfortable saddles, with spring seat pillars, would be a decided advantage,and combined with spring handlebars would tend, in a. great degree,to make the motor-bicycle a two-wheeled car in reality. Luggagecarriers are essential in every tourist's out□ðt,andifthe machine be heavy, an excellent device whereby the carrier can be converted into a stand is now on the market…Agood horn will scatter those pedestrians who delight in taking up the whole road better than two or three bells. I have tried one of these latter in the form of a 2¾in sheep gongelectric bell, rung from the motorcycle accumulator. It made a tremendous racket, being actuated by a push button let into the handlebar end, but the awkwardness and cumbrousness of the arrangement, as compared with a neat eīective horn turned the scale in favour of the latter. Regardinglamps, the makers have catered well for the

motorcyclist. Acetylene lamps in spite of their little peculiarities and defects, have the undeniable advantage of illuminating the road. Paraīin lamps do not appear to have received suīicient of the makers' attention…Lamp brackets are now having the attention paid to them they deserve, so that the □ðimsy sheet metal brackets which do duty for the lady cyclist's baby lamp are, so far as they concern motor-cycles, being relegated to the scrap heap. To go, however, to the other extreme and have a ¼in-thick heavy malleable iron casting bolted to the tube is not wise, and the result is not 'goodly to look upon'…A guard for the belt is absolutely necessary, but as yet I do not know of a single machine with this □ðtting. A motor-cyclist wishes to look respectable when on the machine, but how can this be done when the belt greases his trouser leg, and an old pair of pants has to be donned, or a pair of overalls or long leggings? An additional guard, at the side of the wheel, to prevent the mud from splashing up on to the belt, is also a desideratum. A two-speed gear for starting and assisting the motor would be a good thing, but the price would be prohibitive, perhaps. Anyhow, there could be a speed cone on the driving drum, and one on the motor pulley, so that were a hilly district being traversed the belt could be changed from one pulley to the other as in the case of machine tools…The motors used at the present time are of two distinct types; two-cycle and four-cycle. To do without valves and gears is, no doubt, an excellent thing and is worth a few other considerations in exchange, but the drawback of a poorer mixture and the one or two other really big drawbacks which seem to follow, from all accounts, in the wake of the two-cycle motors (although I have had no practical experience with such), have compelled makers to adopt four-cycle engines almost universally…An exhaust valve may require grinding occasionally, or the inlet valve may stick and the burnt oil refuse to be removed with petrol applications. These should be easy to take out and replace without disturbing the cylinder head with its customary pipes and connections. To have to remove the sparking plug in order to inject paraīin to commence with is a nuisance. A removable plug is of great assistance, both for slightly lubricating the piston rings which have stuck with the thick oil and for observing the spark. A valve or little cup for injecting petrol into the inlet pipe facilitates starting. The fewer nuts there are inside the cylinder and crank case the better, and the more gear there is accessible the more convenient it is…The use of a spring clutch in chain-driven machines has been the only factor which has tended to make this type at all feasible; but the not infrequent snapping of chains in hilly districts seems to show that some makers have a little to learn yet in the design of this appurtenance, although it is approaching perfection every day. A free engine, whether belt or chain driven, is extremely useful, but a clutch capable of giving free engine at will is a step in the right direction, and for machines of over 2¾hp a separate starting device would be very convenient and bene□ðcial to the motorist. Twin cylinder engines for higher powers than 2¾hp are coming to the front; and to those who desire economy, vibration minimised, and power, these in the writer's opinion, are the coming things. When the machine exceeds 2¾hp the work required to start such a motor must be very considerable, especially with a fore-carriage, or up hill, or, perchance, with a trailer. Now with a two-cylindered engine one cylinder can be shut oī on the level, and then when the hill is approached the other side is in □ðne form to take the incline. Without water cooling, above 3hp is too much for one cylinder to dissipate the heat generated unless air fan cooling is resorted to, at least that is my experience. Whether the □ðywheels shall be inside or outside is a moot point…my contention is that inside □ðywheels are hidden mysteries draggling in oil; I prefer to be able to see if the □ðywheel is □ðrmly □ðxed to the shaft, and to be able both to test the compression and also to prevent the belt from jumping the pulley…Handlebar control is a splendid thing, and if a few brains were set to work on this important point the motorcycling community will be bene□ðted thereby. Riding in traīic, especially in damp, greasy weather or dry water-cart ïendish is tricky; two □ðrm handsare wanted on the handlebar, and the control should be from

this point of vantage. When the exhaust valve is lifted, however, the spark should be broken as well and simultaneously with the same lever, so that one hand in emergency can control the machine. For adjusting the gas and air, of course, we can alter the respective taps when out of the madding crowd. For □ðoodingcarburetterswhich are provided with cork or metal □ðoats, sticking a pin (when you have one) into a small hole is very unmechanical, and all carburetters so constructed ought to be provided with a depressor which will spring back…Anadditional air or petrol inlet on the gas supply pipe eīects a saving of petrol sometimes, as it prevents over□ðoodingofthecarburetter; for, instead of pushing down the □ðoat,youinject a little petrol from the can, and the gas generated thus starts the carburetter into action…Agood tank, one that will not leak, and that will keep its petrol intact, without evaporation, is a great boon; but if we had a good gauge or indicator a correct estimate could be obtained from the contents as to how many miles so many pints should carry one…anew petrol gauge with a protected glass sight is the desired object. Petrol and waste oil drain cocks are generally conspicuous by their absence on the motor and tank, a square or hexagonal headed set screw usually being employed, so that if the motorcyclist wishes to empty the dirty oil out crank chamber he gets a hot, □ðlthyconcoction,which was once oil, on to his hands, making him like a sweep or stoker…Thisisthe development of detail which appeals to the novice. A good inlet should be □ðttedtothe tank for □ðllingpurposes,and separate funnels for oil and petrol should be provided. A useful accessory is the petrol or paraīin squirt for clearing out grit; this is unequalled, especially for hubs, free wheels and the like, and for injecting petrol or paraīin into the cylinder it will be found an exceptionally convenient article. The levers used on many makes of motor-bicycles are far too short. To get a □ðneadjustmentwhen going over rough roads is well nigh impossible. Theseshould all be constructed on a ratchet principle, so that to shake over is an impossibility…Automatic lubrication has been talked about a grey deal, but hitherto not much practical good has resulted…Ipurchased an automatic pump a few days back, thinking that I should be able to dispense with the two-way tap and its disadvantages;but the principle was wrong, and it wanted a single-way tap, in addition to various locking devices, so I discarded it and got a two-way tap pump with sight feed. Thesepumps are, in my opinion, made too heavy; one weighed over 1lb. Economisation of weight in the equipment of the gear necessary for every motorcycle is of great importance. The pump should be placed where it can be seen. I have no patience with the out-of-sight lubricator. Either the hand is smeared with oil, or oil does not go into the case; such mishaps are bound to occur if the motor is attended to with your eyes shut. Better to be tempted to oil up too frequently than too seldom; the former can be cured, the latter cannot until too late. Passingon to the electrical details—here, indeed, is considerable scope for the ingenuity of the manufacturer and the designer. The electrical equipment of the motor-bicycle is the key to the machine. If the motor be of ever so excellent quality and material, and the batteries, coil, etc, be of poor quality, the bicycle becomes a wreck and a nuisance to its owner. Be sure of getting a certain spark, and the rest will go on all right. A □ðyoraspeck of dirt may upset the working of the motor and carburetter, but a slight amount of vibration will upset the electrical gear altogether if not of good, sound, solid and substantial design. The best battery I ever came across was of Continental make. I have had no trouble with it, and many miles have been travelled by its assistance. Themilitary manoeuvres at Aldershot during Whit week were successfully gone through by a friend who borrowed it for his 2¼De Dion motor bicycle. It is not my intention to complain about the British made article, but accumulator manufacturers here do not appear to have fully realised the enormous amount of vibration which a motor-bicycle has to stand when going over rough roads at a high speed. Instances of short-circuiting and the damaging eīects it causes are becoming very rare, but in an accumulator designed for solid □ðlling,liquidacid should not be used. The solid □ðllingis

improving in quality daily, and may eventually supersede the liquid acid, which is so destructive to clothes and other impedimenta. A non-corroding metal for the terminals must be more extensively used to win that satisfaction from the motorist necessary to provide trade…The coil is, I venture to say, required to be the most reliable of all the details necessary to perfect a motor-bicycle. But only a few English □ðrmsmake coils. As parting advice to beginners, I say, do not be led into the belief that the larger the coil the more perfect is it; this is not so. The coil I use is very small, but very eīicient. The contact breaker is at times 'tricky' in its behaviour, and the verdict goes to a wipe contact and trembler coil as being the most satisfactory. There are contact breakers, however, which do away with the trembler coil and yet give uniform results, and as my experience has been with these latter varieties I can say that they are as near perfection as anything can be…The switch handle has come in for its share of blame on the score of unreliability, stranded wires causing circuits instead of a complete break. A good switch is on the market to clip to the handlebar, but if we could have one in the form of a small trembler to □ðt inside the handlebar, it seems to me that a neater arrangement could be made, as it would (or could) have the advantage of being waterproof. The method of breaking the spark by depressing the brake lever has found favour with some good makers, but a sort of spring buīer requires □ðtting, for the reason that when going sharply over a rough piece of road the lever is apt to jump out of its place and so cause mis□ðring occasionally. Returning once again to the motor itself, the question of silence deserves attention, and if this was more looked after an increased sale would be the result. If every motor manufacturer sold a motor which would run (so for as the explosions went) silently, he would not only be comforted by the re□ðection that the silky running of the roadster bad been brought back to civilisation, but the demand for his goods would be so great that the supply would fall short. It is not the speed which the man in the street so much objects to, as the earsplitting noise and terrifying tootle of the horn. Although I have written at some length, I have not yet exhausted all the numerous accessories, such as cyclometers, sparking plugs, belt fasteners, mudguards and tyres, all of which are receiving attention in their respective quarters. The last item is not so perfect as might be wished for."



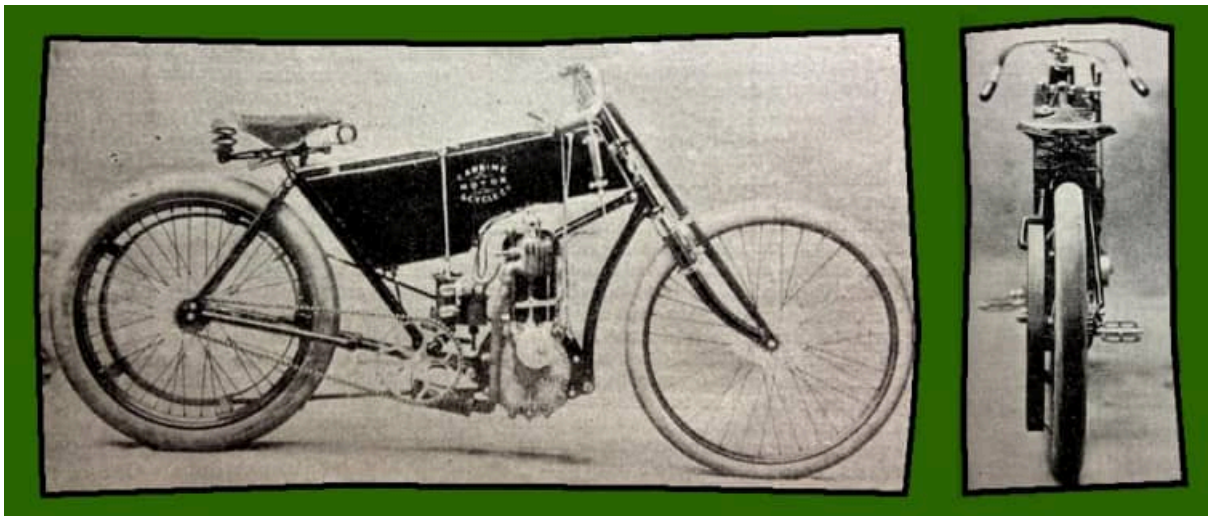
"The Ripley Road is well patronised by the motorcyclist, and during the course of any □ðne Sunday, motors of all shapes and sizes may be seen outside of the 'Angel' at Ditton. Our illustration depicts the arrival of a speedy-looking motorcycle, the photograph being taken just before the rider dismounted."

"THE FOLLOWINGISTHEitinerary of the end to end tour which has been arranged by the Motorcycle Section of the CTC:Mon, 28 Sept, Land's End to Exeter, 120½ miles; Tues, 29 Sept, to Worcester, 136¼; Wed, 30 Sept, to Preston, 125; Thurs, 1 Oct, to Hawick, 130½; Fri, 2 Oct, to Perth (via Edininboro), 116; Sat, 3 Oct, to Inverness, 115¾; Sun, 4 Oct, rest; Mon, 5 Oct, to John o' Groats, 136¼. Although the tour proper will commence at Land's End and □ðnishatJohno' Groats, an informal party will be made up to do the double journey thus: Thurs 24 Sept, London to Yeovil, 122½; Fri, 25 Sept, to Okehampton (via Exeter), 69¼; Sat, 26 Sept, to Land's End, 100¼; Wed, 7 Oct, John o' Groats to Inverness, 136¼; Thurs, 8 Oct, to Perth, 115¾; Fri, 9 Oct, to Glasgow, 50; Mon 12 Oct- Wed 14 Oct, Glasgow to London, about 410. Motorcyclists who wish to join in the tour should send in their names at once, either to the secretary of the CTC, or the chairman of the Motorcycle Section, A Chandler, 1, Lime Grove, Shepherd's Bush, W."

"SIR,—ISENDYOUphoto prints of an Australian built motorcycle which will, no doubt, prove of interest to many English manufacturing □ðrms,andalsoto many of your readers, on account of its departure from the ordinary lines of the standard motor frame. Themachine has just been turned out by the Carbine Cycle and Motor Co, of Melbourne, being built to the speci□ðcationofa Melbourne motorist, Mr HB James.Themachine has been built up with a view of absorbing vibration on the rough Australian roads, many of which are only □ðtfordrays,etc. Another idea aimed at by the designer is the overcoming of wind resistance and consequent gain in power, and at the same time the production of a machine which should be safe on muddy roads by reason of its low centre of gravity. Following are some particulars: Themost striking feature is the frame, which is built fairly high in the front, and then sweeps down until the saddle pillar lug is only about 15 inches above the bottom chain stays, whilst the top of the saddle (BrooksB90 is

only some 33in froth the ground. Theframe provides a long wheel base, being 52in from centre to centre of wheels, and the full measurement over all is 80in. Themotor is a 2¾hp MMC set vertically well forward in the frame; it is fed through a Longuemarecarburetter. Thetransmission is by 1½in □ðatbelt,8½ftlong, built up of two thin pieces of English tanned leather, sewn near each edgewith copper stitching. Thewheels are 26in, □ðttedwithDunlop tyres, the back tyre being extra large (3in on 2½in Dunlop-Welch rim), with a view of absorbing vibration. Thephoto of the rear part of machine givesa fair idea of the size of tyre and belt. Provision for petrol, cells, lubricating oil, coils, tools, and repair out□ðtisprovidedfor in one large copper tank, so that everything is kept dry and clean, and out of the way. The'tout ensemble' is compact and very racy looking, the rakish lines of the frame and front forks giving the machine a graceful appearance. Trial runs over some 400 miles have proved the machine a comfortable riding one, easy of control, with a speed rangeof from 4-30mph. Thegear is 4 to 1, the engine driving pulley being leather lined, and even with this high gear it is a good hill climber. Themachine weighs empty (ie, without oil and cells) about 170lb, and 200lb with cells. Theselatter are four 'Obach' dry cells, which weigh 13lb, and a supply of petrol suïicient to carry the motor from 130 to 150 miles. Theback wheel weighs 19lb. complete with tyres, etc, whilst the copper tank weighs 17lb. Themachine is enamelled black, lightened up with red rims and red lines on the tank; the complete machine givesan idea of great strength, which is the feature mainly wanted on our roads.

'An Australian Subscriber'."



"Side view of Motor-Bicycle for Australian roads referred to in letter from 'An Australian Subscriber'. (Right)"Back view of Bicycle referred to by'An Australian Subscriber'."

Motor Cycling in West Australia.

By C. H. C.

"MY FIRSTRIDEISHALLnever forget. I knew nothing about motors, and had not ridden 50 miles up to that time on a motor cycle, and I started away from Menzieswith a 350 miles trip in front of me. I was advised by my head oïice to carry a good kit of odds and ends and plenty of naphtha; so I started. I had a spare tank over the back wheel holding 2½gallons of naphtha, besides what was in the machine tank and carburetter, spare valves, springs, cotters, tremblers, and screws, and spare accumulator. I might add here that the machine was a front-driven Werner. The □ðrst

10 miles on my trip I walked and pedalled alternately. Theconfounded thing would not go; but all of a sudden, just as I had made up my mind to turn back, the engine started, and I did not give it a chance to stop till about 50 miles out, when I was running down a hill, full gas on, lever as for advanced as I could get it, and in the best of spirits, when I struck a nasty little gutter running across the track, about a foot or more wide and the same in depth, with the consequence that I was nearly thrown oī my machine. I stopped to view the damage, and found that I had knocked eight spokes out of the driving wheel. Well, I □ðxedittemporarily,and with 40 miles between me and the nearest repair shop I proceeded along, driving very carefully. The next check I received was a lake. Theselakes are more often dry than otherwise, but this time there was nearly a foot of water, to say nothing of the mud. Well, oī came boots and socks, and I commenced to push the machine across it, with the result that I got fairly bogged in the centre, about 40 yards from the shore, and it took me just over two solid hours to get that machine out. I journeyed back about □ðvemilestoa wayside inn and stopped for the night. Next morning, after going a mile, the driving rim fell oī, the arms were broken, and I then had to pedal into Rookynie (20 miles) with all my load up, and from there caught the train back to Menzies. We have no roads on the gold□ðeld—theyarejustcleared tracks—but owing to the great number of camels engaged in the carrying trade they are kept in good order. A string of about 30 camels loaded up will make a good solid path over the heaviest sand; at the same time these paths are usually too winding to allow of anything faster than about 20mph. We use naphtha—here branded 'stove naphtha'—but never yet have I been bothered with stale spirit as you seem to be at home. For instance, I have left the machine standing for a week, and then the spirit has exploded □ðrst revolution; have repeatedly ridden 120 miles on one gallon with the 1½hp front-driven Werner. I have no use for a sparking gap; never yet have I had reason to complain of dirty plugs, except after, say, a 200 or 300 miles trip; never found the need of a starting lubricant for the engine either. Naphtha can be bought all over the □ðeldsexceptin the remote places. Just lately I □ðxeda 1½hp front Werner engine on a lady and gentleman's Raleigh tandem, made a copy of the Werner carburetter, and it is a decided success. Thewife and myself have some good rides occasionally. Themachine will do about 20mph. I am now riding a 2hp rear-driven Werner. It is very fast; in fact, too fast for our paths, but when the road will allow it the pace is everything that can be desired. Both TheAutocar and TheMotor Cycle are very newsy, and the hints I have found very useful; and not only that, they often cause me to smile, especially when someone wants to know why some thing won't do its work. I remember my □ðrstride!Sincewriting you last I have added 480 miles to my total. I wish I had kept an exact tally of my mileage; it would have been more interesting."

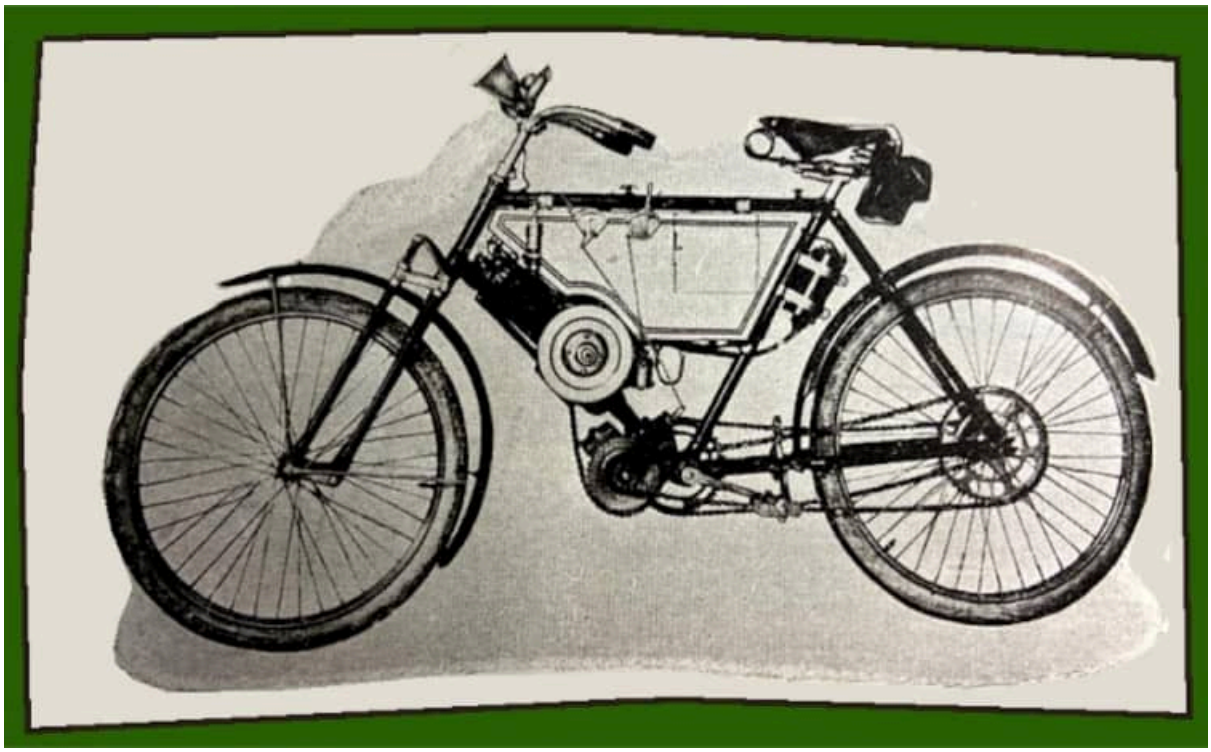
I sent a copy of this yarn to my mate Murray who, as well as producing the priceless electronic A-Z list of the world's motor cycles and much more (https://ozebook.com/), edits the Vintage MCC of Western Australia magazine Chatter. Murray kindly reciprocated with some pics of Mackenzie, which he's ridden to. Evidently it's a bit of a ghost town but the scenery is clearly extraordinary—and they're still □ðinding gold there too.

AUSSIE ENTHUSIAST (AND DUNLOP tyre salesman) Harry James invited every motor vehicle owner in Victoria (30 car owners and 60 motor cyclists) to lunch where they formed the Automobile Club of Victoria. He went on to organise some gruelling long-distance trials, including the 1,148-mile 'Military-Dispatch' relay race from Adelaide to Sydney.

"THE CLARENDON MOTOR COMPANY, Earlsdon, Coventry, have now added a 3hp motor-bicycle to their list. The frame has been specially designed and strengthened in various ways. The motor is a 3hp actual, with mechanical inlet valve. A special feature of the Clarendon machine is the □ðrm's patent outside ball bearing for the belt pulley, which considerably reduces the strain on the bearing when starting. It also minimises vibration, thus adding to the comfort of the rider. A Longuemare carburetter is □ðtted, and the machine has a petrol capacity for a run of 120 miles."

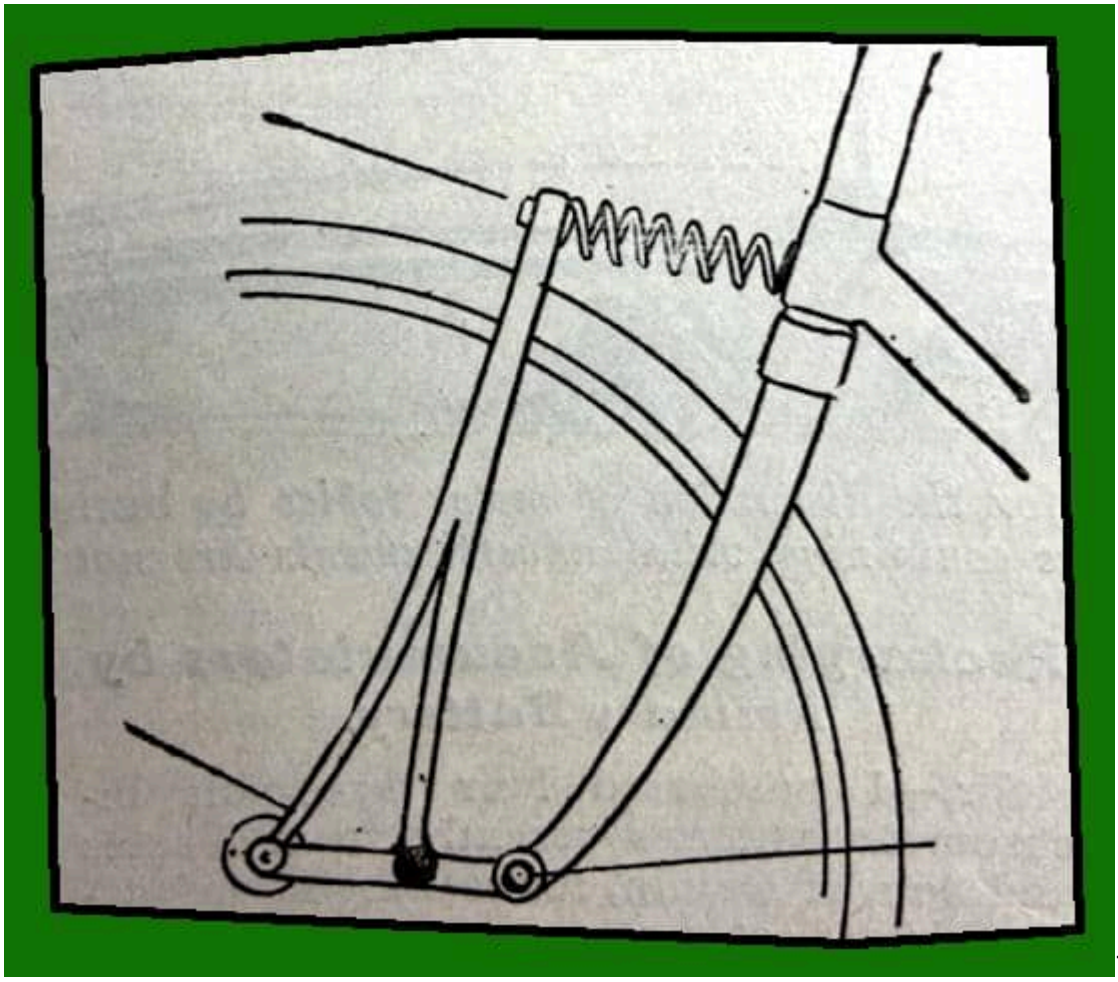
"MANY ATTEMPTS HAVE BEEN made to solve the vibration problem on a motor-bicycle. The need for isolation from the severe road shocks is pretty generally admitted. The main diīiculties in designing a spring suspension fork were the working joints becoming 'shackley', or if springs were used to avoid working joints, then it was impossible to keep the wheel stable in a vertical plane, that is to say, it rolled over sideways. The Garrard Company claim have overcome both objections. The motion is like that of a parallel ruler, so that the wheel can only move in relation to the machine in a vertical plane; it cannot possibly roll over sideways in the least degree. The chief feature in the construction is the joints. It is well known that Mr Garrard is a past master in the choice and treatment of steel; the joints are 'Garrardized' by the 'B process', that is, the metal is treated in such a manner that it is harder than the silicon (of which road dust is chie□ðy composed), but this is not all; it has the remarkable property that it cannot seize or drag. This admits of making the joints coned at an angle of 29°, and a spring washer of the Thackery type pushes the cones together all the time; a pair of lock nuts are locked up hard, and the joints, the makers claim, will not require attention beyond a little oil for years. It may be objected that such a joint produces friction; the makers admit this and mention the fact that so do the leaves of all

laminated springs. It is even advantageous to have some friction in these joints, as after a big bump the springs come to rest sooner. With Garrard's suspended fork, a small light high-speed engine and their two-speed gear, the makers claim that the motorcyclist is provided with the most comfortable machine."



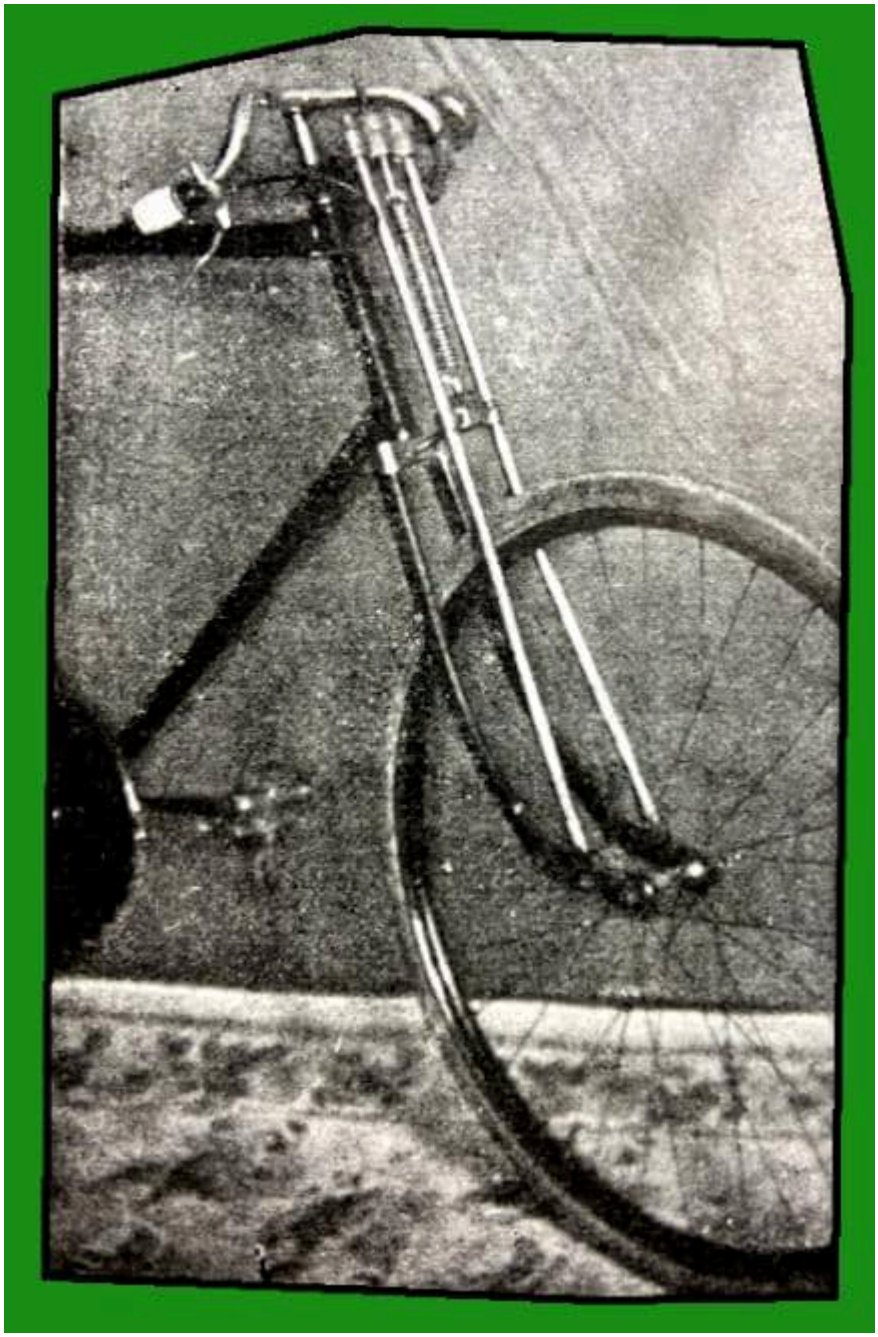
"The latest Garrard Motor-Bicycle with spring fork." Note the manufacturer's comment about a little friction being a good thing; the girder forks on my Panther and Beezas all feature friction dampers.

"SIR,—WITH REGARD TO VIBRATION on motor-bicycles, I noticed in your issue of the 9th ult a description of a new spring fork brought out by The Garrard Manufacturing Company. This is a most excellent invention, but I think it is only fair that I should mention that for the last two years I have been riding with every satisfaction a motor-bicycle □ðttedwitha very similar arrangement patented by Mr JL Thomas, of High Barnet. If your readers could realise what an immense advantage such a spring fork is on rough or bumpy roads I feel con□ðdentthatit would not be long before every □ðrst-classmachine was □ðttedwitha similar device. Mr Thomas's arrangement consists of the most simple mechanism. I have ridden my machine for over 3,000 miles on roads of every description, including Yorkshire moors, never once having oiled or touched the joint which does not show the least sign of wear or side-play. For some time past I have been intending to send you a description of the most excellent contrivance, having personally derived so much advantage from experiences of the readers of your most valuable journal, which I have taken great pleasure in reading from the famous No 1.
James B Peart."



This sketch appeared with Mr Peart's letter; a few years later Triumph would have great success with horizontally sprung girder forks.

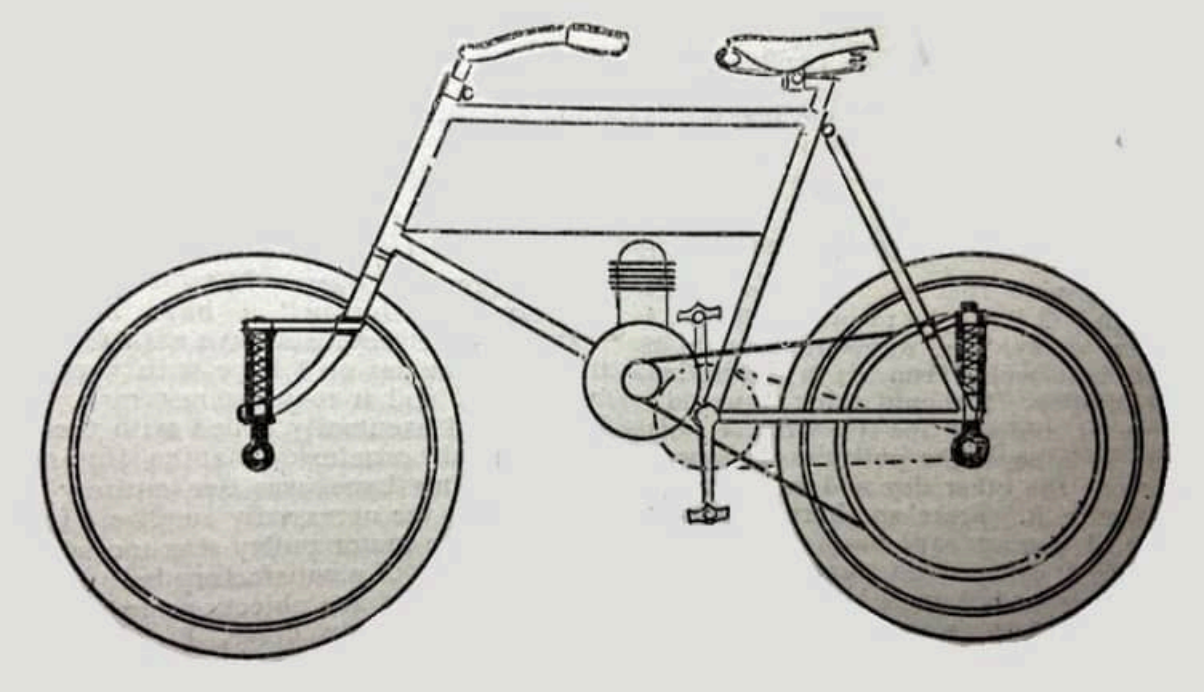
"SIR, I NOTICED IN The Motor some correspondence with regard to spring forks for motorcycles. I enclose a photo of a spring fork which I have invented and patented, and which I think might perhaps interest your readers. There is a supplementary pair of forks, which slide in guides attached to the fork crown and ball race respectively, the movement being controlled by a spring. As will be seen, the wheel is pivotted to the forks in a similar manner to Mr Thomas's arrangement, as mentioned in Mr Peart's letter, but I think my arrangement is neater and more compact.
H Drew."



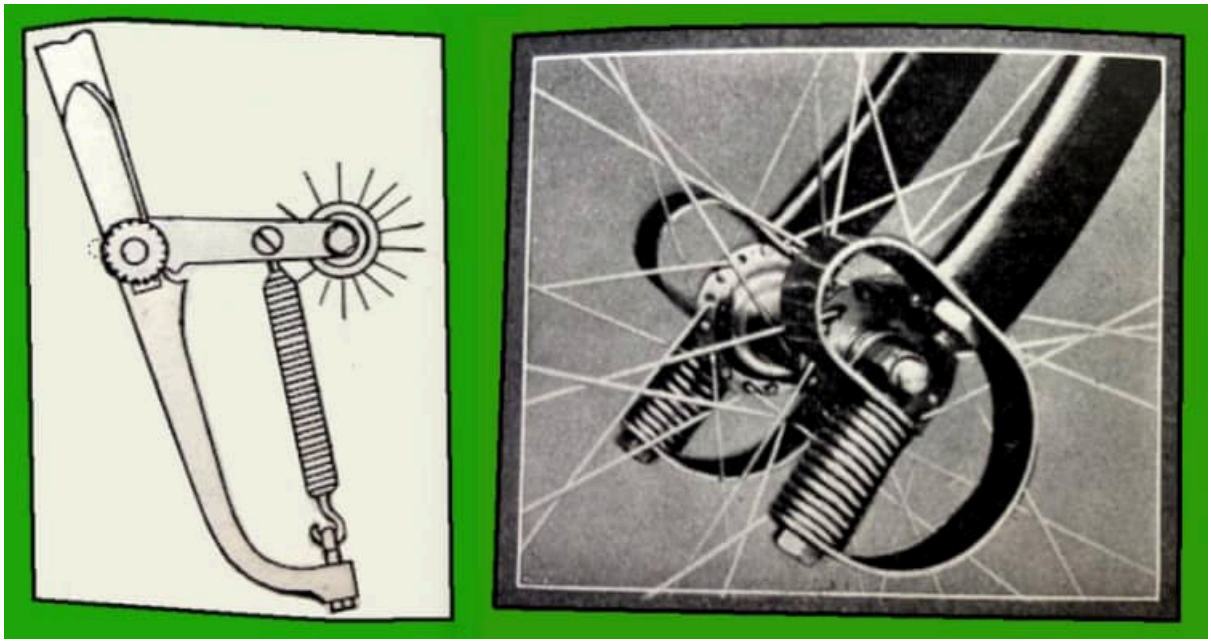
Mr Drew's design might fairly be described as springers.

"SIR,—IN THESEPTEMBER23rdissueof The Motor an article on the subject of vibration and its remedies by 'Cyclomot' strikes a responsive wave-thought which vibrates in tune to his vibrations on the subject. It seems very strange to me that from the days of the old bone-shaker up to the present time no one has successfully produced a spring attachment □ðttedwhereitis most needed, viz, at the axles, to insulate them from the frame. Spring seat pillar makers do not seem to realise that when the rear wheel of a cycle rides over an obstruction or drops into a cavity the direction of motion which the rider experiences is more than 45° to the angle at which the seat pillar plays up and down, so that a binding eīect is produced, robbing the rider of the full bene□ðtofthe springs. The spring handlebars, on the contrary, are □ðxedinaplane parallel to the up and down motion of the front wheel (throttle your engine and ride behind the other fellow and watch him shiver, and you will be convinced). If the makers of spring seat pillars want to confer a boon on jolted humanity, let them apply their spring-pillar to the axle and frame in an

inverted position to both wheels, as per sketch. This idea properly carried out would convert every cycle, whether pedal or motor propelled, into a comfortable machine, besides doing much by taking the severe strain oī the tyres to prolong their life. This would perhaps lead the way to lighter machines, as the severe racking that the frame has to withstand at present would be lessened; also the practice of □ðtting motors sets to roadster cycles would receive an impetus…I have lately tried that scheme of 'Magneto's,' which I read about in 'The Motor' some time past, of using the exhaust gases for cooling the engine on my California, and think it is an excellent suggestion, for I obtain far more power, though perhaps part of this may be due to the lessened throttling eīect of an enlarged escape. I hope soon that we shall have all motor control eīected from the handles, and when the perfect two-speed and free engine pulley at a reasonable price appears I hope the makers will exhibit it at the Shows.
W. Turner."

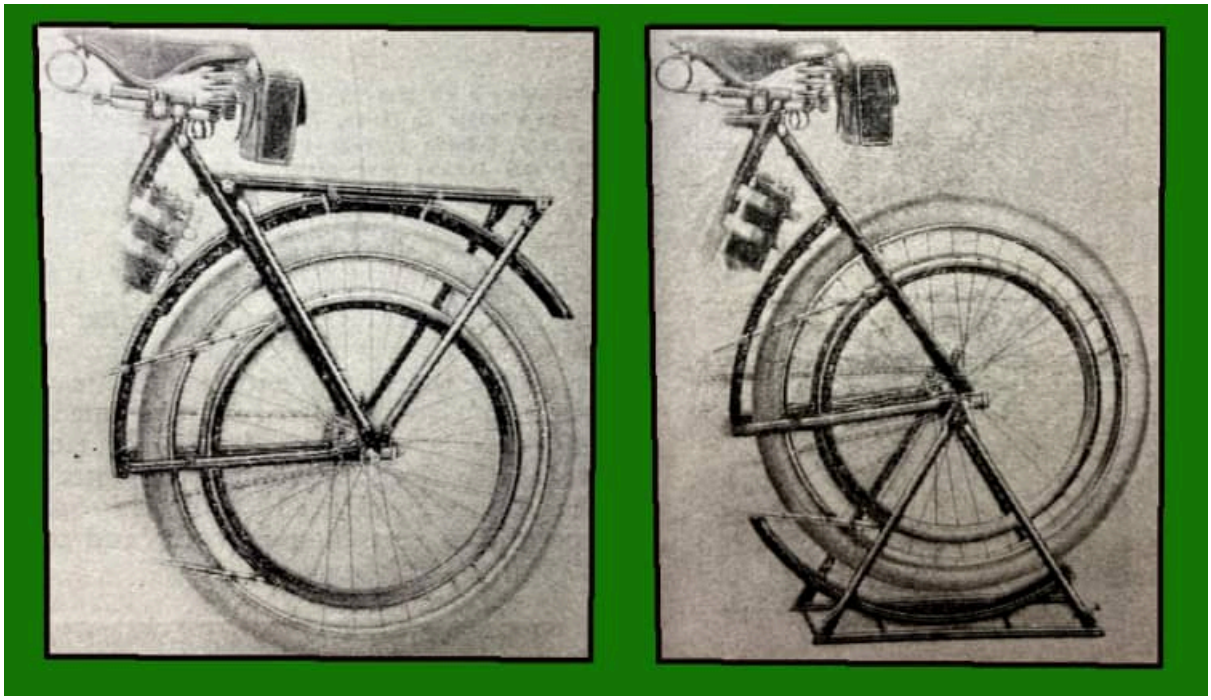


Mr Turner had a dream…suspension!



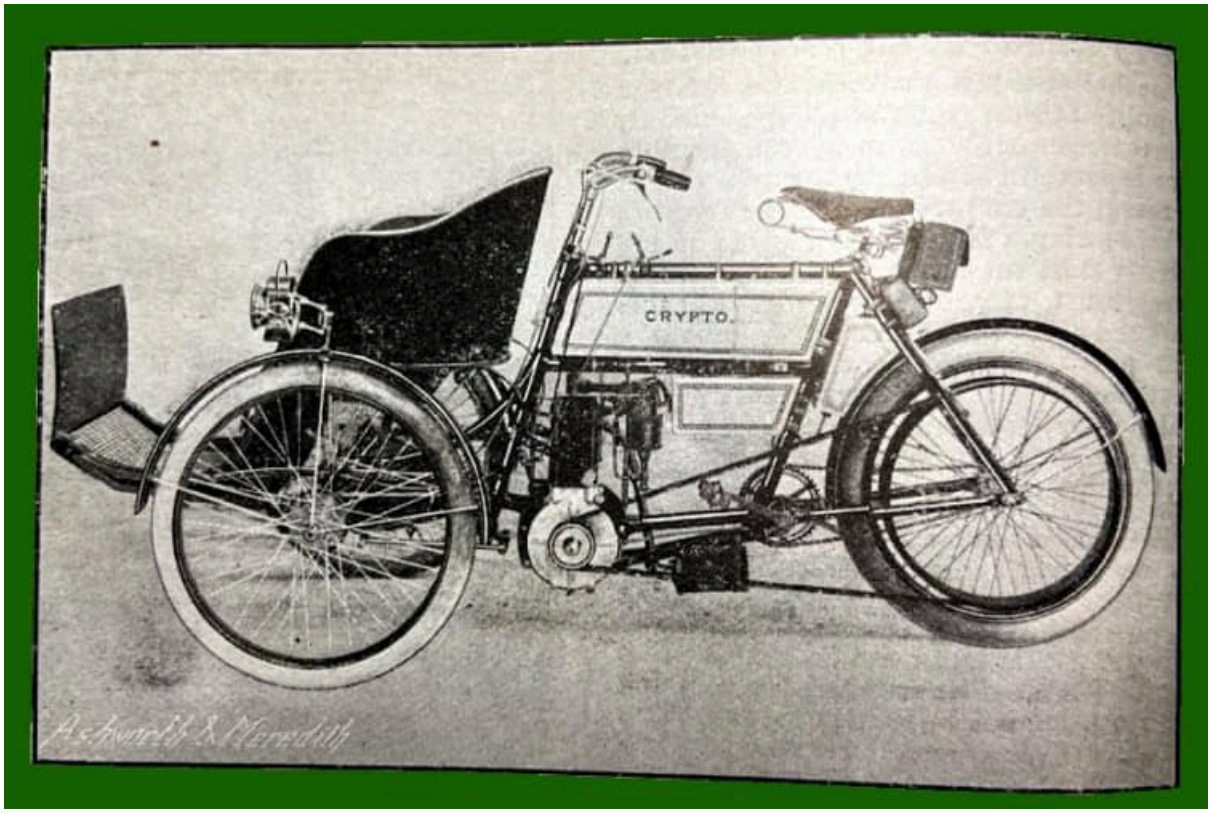
“The new model Quadrant front forks take an oval section tubular form for their greater length. From the termination of the tube a forging is projected some six inches below the centre of the hub spindle. A boss is formed in this forging, which carries a forwardly-extended link, to which the hub of the front wheel is attached. This extension is mounted on an adjustable ball bearing; a strong helical spring connects up this link to the extremity of the front fork extension.” (Right) James Duīy of Carrickmacross produced a spring fork (and a spring handlebar).

“THE GARRARD COMBINATION STAND and Carrier. The latest invention from the Garrard Manufacturing Company’s works consists of a light, yet strong, attachment to □ðton the back axle of a motor-bicycle and forms a convenient stand, so arranged that the rear portion of the mudguard comes away with it and thus the tyre is get atable for inspection or easy repair. When folded up in its normal position a capacious luggage carrier is formed. It is held securely in position by a clip to the back stays. There is no doubt that the mudguard on a motor-bicycle becomes a nuisance at times when the rider wishes to remove the cover of the tyre quickly, and the idea of making it in two sections and securing the rear part to the carrier is a capital one, and will doubtless be much appreciated.”



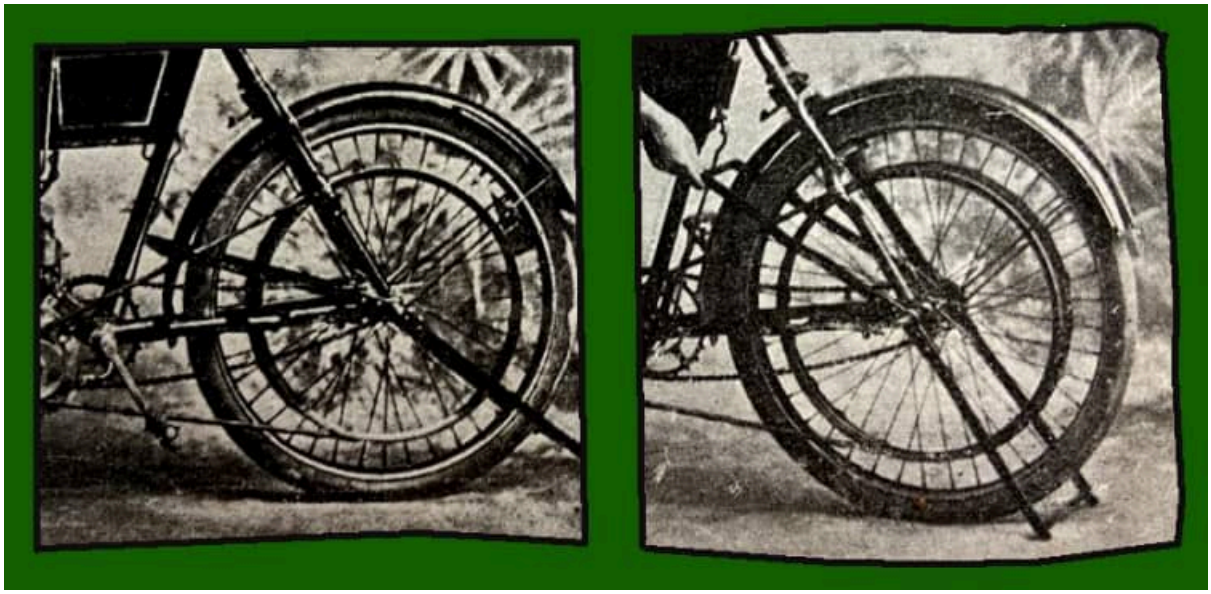
“The Garrard Combination Stand and Carrier, shown in both capacities.”

“THE‘SPARK’MOTOR-BICYCLE,whichis a machine not as yet well known, has a 2hp engine with outside □ðy-wheel.Themotorisvertical, and is held in position by three clamps from crank case to loop of frame. Thedrive is by V-belt, and the driving rim is held by bent lugs, which allow a certain amount of spring. A surface carburetter is □ðttedandaspecial system of magneto ignition. Control is by levers on the top tube. Theright-hand one regulates supply to the inlet valve and the left-hand lever lifts the exhaust. Thefront brake lever when lifted cuts out the engine by short-circuiting the magneto. This machine will, we understand, shortly be made with specially designed BSA□ðttings,girderfront forks and two rim brakes.”



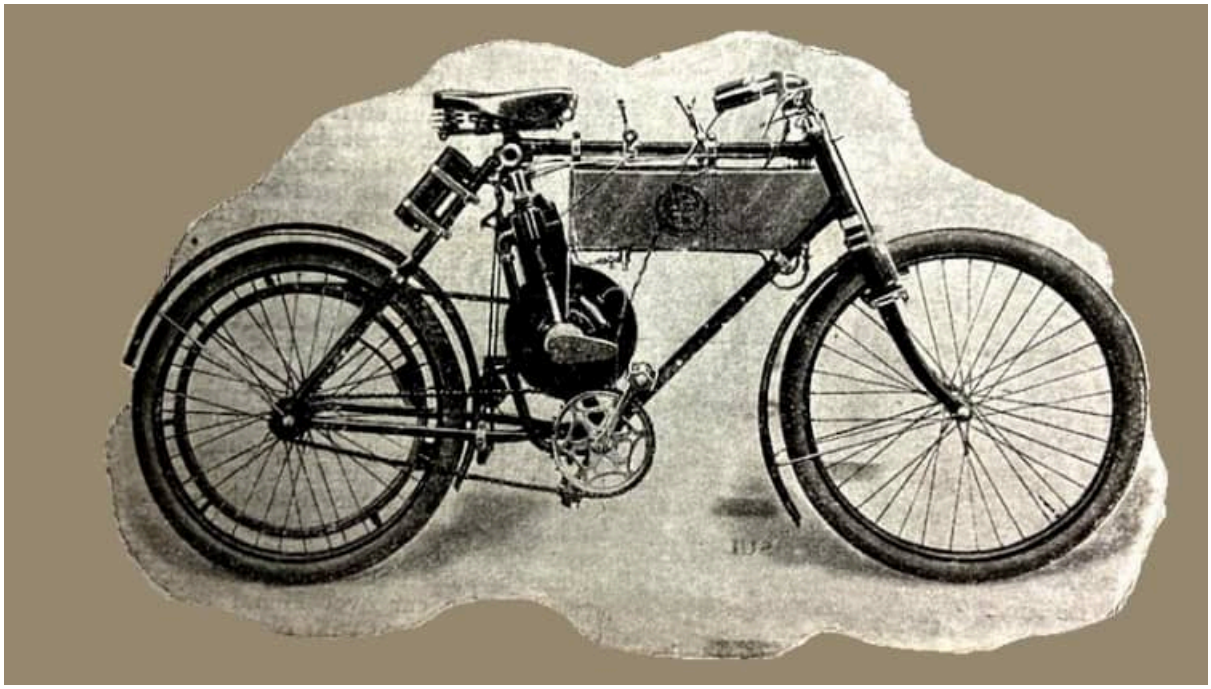
“The illustration depicts the motor tandem tricycle just placed on the market by the Crypto Works Co, Clerkenwell Road, London, EC. The company were the original inventors of this type of tricycle, which has special features in the steering arrangement. A vertical 2¾hp engine is used, driving the rear wheel by a long belt. The carburetter is a spray type, and ignition is high-tension electric. There is a band brake on each front wheel, and a powerful rim brake on the back. The fore-carriage, it will be noticed, is of a specially neat design.”

“THERE IS NO DISPUTING the fact that a simple and reliable stand is now an absolute necessity on a motor-bicycle. It is no light task having to start up the engine by pedalling the vehicle in the roadway. In case of a puncture in the back tyre a stand is a great saving in time, health, and temper. Recently, when in Nottingham, we met Mr Fred Fletcher, the safety champion of 1890. Fletcher is of an inventive turn of mind, and is eminently practical in whatever he undertakes. The new ‘Starteasy Motorcycle Stand’, as it is called, is the simplest thing of the kind yet brought to our notice. It is always ready for use, as will be seen by the □ðrst illustration. On reaching a point when the rider desires to stop it is not necessary to walk round to □ðnd a wall or improvise a stand to place the motor-bicycle against. All that has to be done is to push the machine backward and slip the top end of the stand out of the catch. The machine may be mounted in this position, as it stands as rigid as possible The stand will □ðt any recognised make of motor-bicycle. It is retailed at 17s 6d, and all particulars may be obtained from Fletcher Bros, Bath Street, Ilkeston.”



“A new stand for Motor-Bicycles”. Behold, the ‘Starteasy’—rear stands would be ubiquitous for the next half-century.

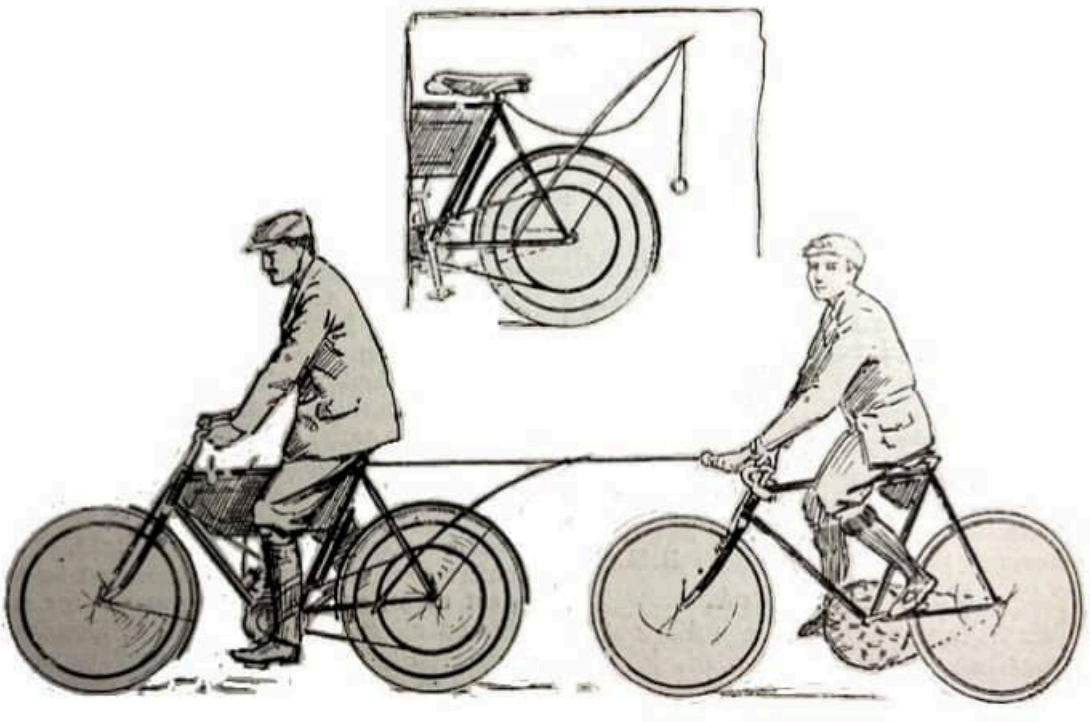
“THE SÉEMOTORCARSupply Company, Hills Place, Oxford Street, has the sole agency for the Lamaudiere motor-bicycle in England and the Colonies. The engine develops on actual brake test over 2½hp, and really forms part of the frame, taking the place of the down tube. Inserted brazed-on lugs are used where the motor is attached. A chromated raw hide twisted belt transmits the power. A jockey pulley, adjustable by lever from the top tube, enables the rider to free the engine at will by slackening the belt so that it loses frictional contact with the engine pulley. This is particularly useful in traïic, as the bicycle can be brought to a standstill, the rider remount and dismount with the engine running all the time.”



“The Lamaudiere Motor-Bicycle.”

“SIR,—THEACCOMPANYINGILLUSTRATIONSmayinterest motorcyclists as showing a simple and safe contrivance for towing. I rigged this up on a run with a friend from Surbiton to Clapham

and, needless to say, it was successful. It consisted of a piece of thin cane, 4ft. long, lashed to the top and bottom stays at the part cranked out to take the driving pulley wheel. One end of a 6ft tow line (Venetian blind cord) was made fast to the seat pillar, and about 3ft from this was fastened to within 3in of the end of the cane by what is known as a clove hitch, so that when taut the pull was direct from the seat pillar and leaving about 2ft of cord to hang free with a curtain ring 1½ to 2in in diameter □ðxed to the end. When the towee casts oī the line is drawn up free of the wheel by the springing of the cane, and it can be easily caught again while the motorcycle is running, and the motor-cyclist can dismount in the usual manner, the cane bending and allowing either leg to pass it.
Hy Salsbury, Blackfriars, SE."



"Illustrating letter from H Salsbury."

"A LARGE STOCK OF PETROL is carried by Phoenix Motors at their works, Blundell Street, Caledonian Road, London, N. They can supply .680 spirit, but also carry a stock of .700 and .720. A special store, in accordance with the latest regulations laid down by the London County Council, has been built, and 200 gallons is the quantity generally in stock."

"THE CLINCHER AL TUBE is one that might well serve as a pattern for other makes. It is of really sensible thickness, and we know of more than one prominent motor cyclist who will use no other. Being of grey rubber, repairing is an easier matter. One or two of the riders who used Clinchers in the 1,000 miles are loud in praise as to their behaviour."

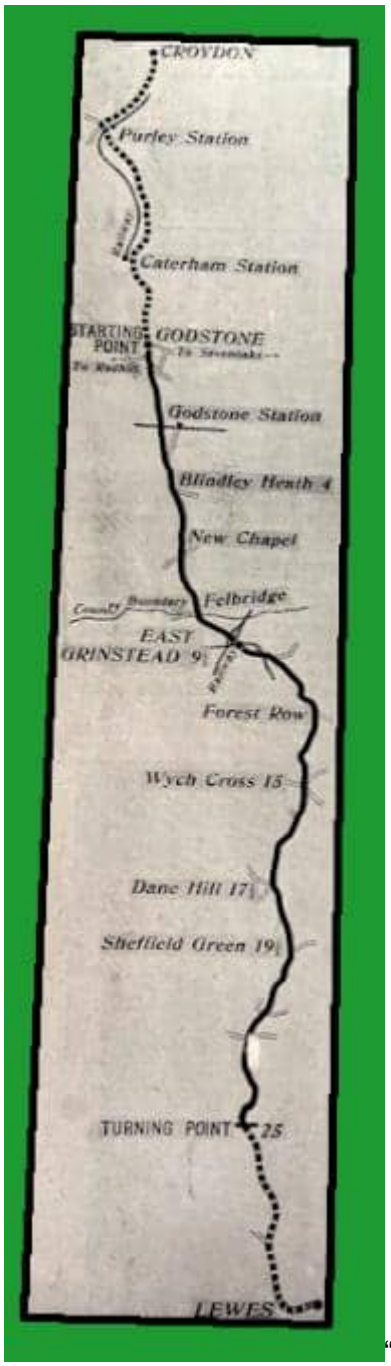
"ONE GREAT ADVANTAGE of the motor bicycle is the opportunity it aīords of visiting hilly districts, which, on account of the trying nature of their roads, □ðnd little favour with cyclists. Most motor cyclists, if anything, have a preference for hilly roads, as apart from the better scenery and views obtained en route, the frequent opportunities aīorded of testing the engine on various gradients undoubtedly add a charm to the ride."

"MR HOARE, THE WELL-KNOWN cycle and motor clothier, Central House, High Holborn, is now selling a most useful suit of overalls for motor cycling. These simply consist of a jacket and

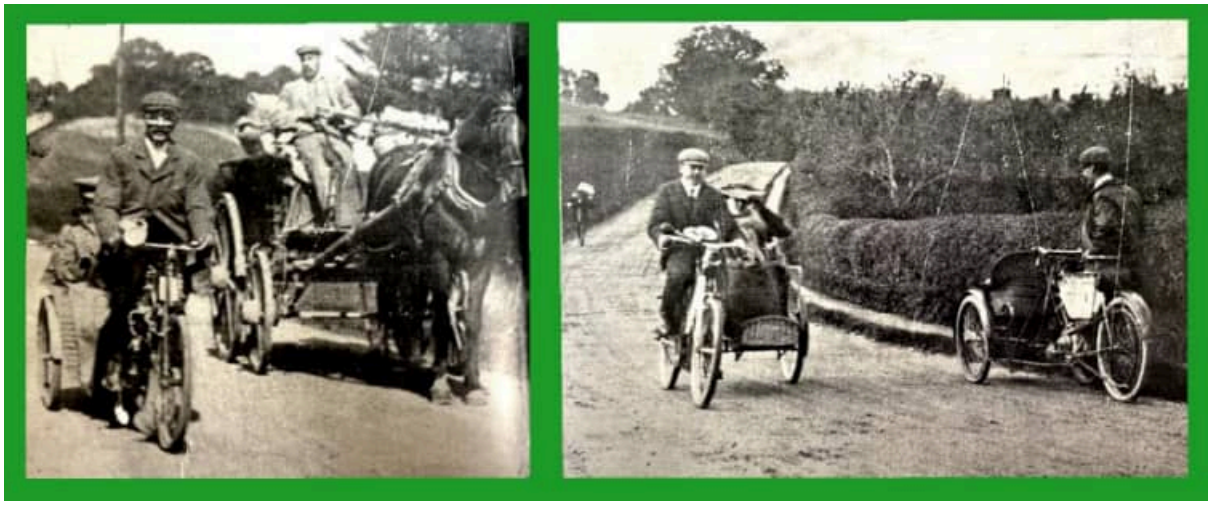
trousers which may be slipped over any respectable suit, no matter how good it is. A motor cyclist can thus visit his friends, or go to a croquet or tennis party in the lightest of □ðannelsuits, slip oī his overalls, and arrive fresh and clean. We have been using such a suit on several occasions of late, and have found it of great service."

"THE EVERINCREASINGPOPULARITYofthefore-car, trailer and side-car attachments for motorcycles suggestedto the committee of the Motor Cycling Club the idea of organisinga 100 miles non-stop test for this class of vehicle, on the lines of the 200 miles trials for single machines held recently. Accordingly, it was decided to hold the test on Saturday last, September 12th. Theroute selected lay on the south side of London, the starting point being Godstone, 22 miles from the City. Theroute was one practically free from traīic, and had the advantage, for trial purposes, of being hilly enough to show up the weak points of a machine. A condition of the trial was that the passengerin the trailer, fore or side car had to be a lady. About 15 entries had been received, and the competitors assembled at the Clayton Arms, Godstone, by 11am. The'natives' of this pretty little Surreyvillage had their curiosity tickled as to the meaning of the crowd of men and strange looking machines outside the hotel, and many were the comments made thereon." Thepassengervehicles completed two laps of a 25-mile course, sat down to lunch at the Clayton Arms Hotel in Godstone and did it againin the afternoon. The Motor reported: "The road is good and slightly undulating to East Grinstead, but beyond there it gets hilly, the surface being poor in places, and a few heavy showers had made the going dangerously greasy at several points." There were 10 starters. A Lagonda bike and trailer dropped out with a snapped drive belt; a Werner bike and trailer was knocked out by a cracked spark-plug"The others were going well, but in most cases had to pedal hard up the stiīest of the hills" but AC Wright's 2¾hp tandem "took all the hills without pedalling". A chap named Milligan (Bradbury fore-car) declined to rejoin the event after lunch. A Humber Olympia tandem was stopped by " fragile fuse wire connecting two accumulator cells breakingwith the vibration or melting". F Garner (3hp Rexand trailer) "experienced a curious mishap on the return, as he was climbing the long rise out of Grinstead. Thehinged joint between the trailer tube and bicycle snapped, but he eīected a rep[air with a couple of straps. This mishap suggests dangerous possibilities in the event of a trailer breaking away on a steep hill…The□ðveremaining competitors reached Godstone about six. All except Lord (Ormonde tandem) had slightly exceeded the speed limit…Thedistribution of the awards in this event are as follows: Wright, on Ormonde tandem, and Hacking, on Ormonde and side-carriage, divide the main award, both these competitors havingcompleted the distance without a stop, and within the limit of the speed provided by the regulations. Messrs Lord, Johnsand Hooydonk will also receive a medal, or some other award, from the funds of the Club. Each of these three competitors completed the distance as a non-stop, but they slightly exceeded the limit of pace. Themaximum pace allowed by the rules was 17mph, and the approximate time to run the distance at this pace

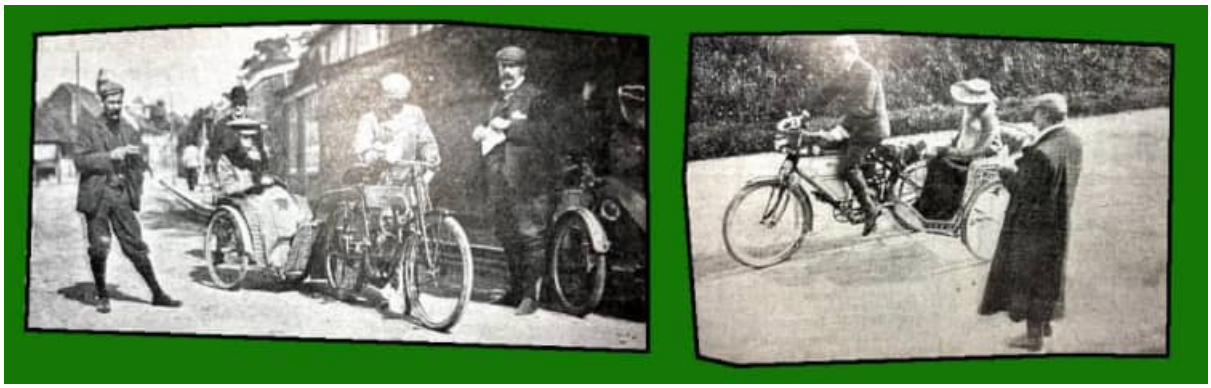
would be 5hr 53min. Thetimes taken by the ðvesuccessfulcompetitors were as follows: Wright, 5hr 53min 49sec, Ormonde tandem; Hacking, 5hr 58min, Ormonde bicycle and side-carriage; Hooydonk, 5hr 48min 22sec, Phoenix Trimo; Johns, 5hr 49min 35sec, Humber and trailer; Lord, 5hr 43min, Ormonde tandem."



"Map of the 100 miles course. Godstone to a point six miles from Lewes and back twice."



“Mr FR Johns and Miss Johns (2¾hp Humber) and trailer.” (Right) “The Ormonde motor bicycle and side
carriage, near Godstone.”



“Mr and Mrs Johns (Humber motorcycle and trailer starting.” (Right) “Turning back near Lewes.”

"The Cycle and Passenger Trial. A cheerful party and Forest Row."

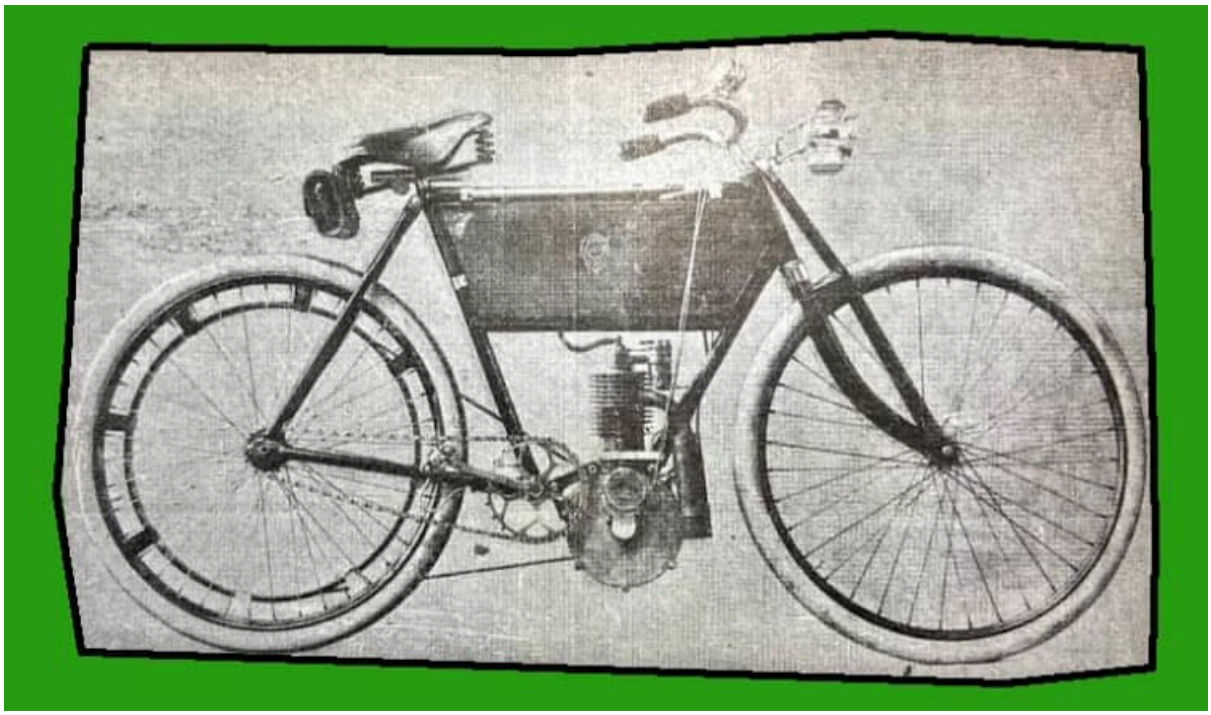
"SIR,—IN REPLY TO H BAILEY. who recently enquired about a Holden motor-bicycle, I may say I was the possessor of a 'Holden', and hope to be in time to prevent him falling into the same error. The vibration I found was tremendous, owing to the direct drive, and for the same reason the tyres soon wear out. The lubrication seems all right, but it supplies the cylinders only and not the gear. The great fault, in my opinion, is the complication, and the diīiculty of getting at the parts, especially the valves, of which there are ten. Often a few strokes of the pedals will keep an ordinary motor going on a bad hill, while on the 'Holden' you most push it up the rest of the hill, and 2cwt is no joke I can assure you. Finally, I □ðnd that my present 2¾hp machine at half the price is more powerful.
Norman F Rhodes."

"SIR,—AS SEVERAL OF YOUR readers have enquired for experiences of the 'Bat' perhaps mine may be of interest. I have ridden 1,400 miles during the ten weeks I have had the machine and have not had the slightest trouble except with the tyres, which are Dunlops. My best ride was from Gainsboro' to Wimbledon, about 180 miles, starting from Gainsboro' at 4 o'clock in the morning and arriving, at Wimbledon at 1 o'clock mid-day in time for lunch. The □ðrst 105 miles were done on less than a gallon of petrol, which I think, sir, you will allow was not bad for a 2¾hp MMC engine. This motor to my mind is simply perfection, and the way it climbs hills with a trailer is a revelation. The return journey to Gainsboro' by a somewhat shorter route with my wife in a trailer was done in exactly 12 hours, including all stops. The distance was 165 miles. The 'De Dion' carburetter always starts at once and works well with any quality of petrol. There is no tendency to choke, and I have not as yet had any occasion to open it up. The machine I □ðnd is a very comfortable one to ride, a fact which I attribute to the □ðxed footrests and the Lamplugh's 'Ride-easy' saddle. Though it has no pedals it will take a trailer up all ordinary hills; in fact, on the run down to Gainsboro' from London there was only one hill, at Grantham, which I could not get up without dropping the passenger. Without a trailer it mounts easily any hill I have come across. Trusting these experiences may be of interest to your reader,
HA Neal, AMIME."

"Sir,—In reply to your correspondent, 'GAB' (Sutton), re side-carriages, I have now been riding one for some time, and I have no hesitation in recommending them in preference to either the fore-carriage or the trailer, as I □ðnd from experience that I can surmount hills which I had to walk

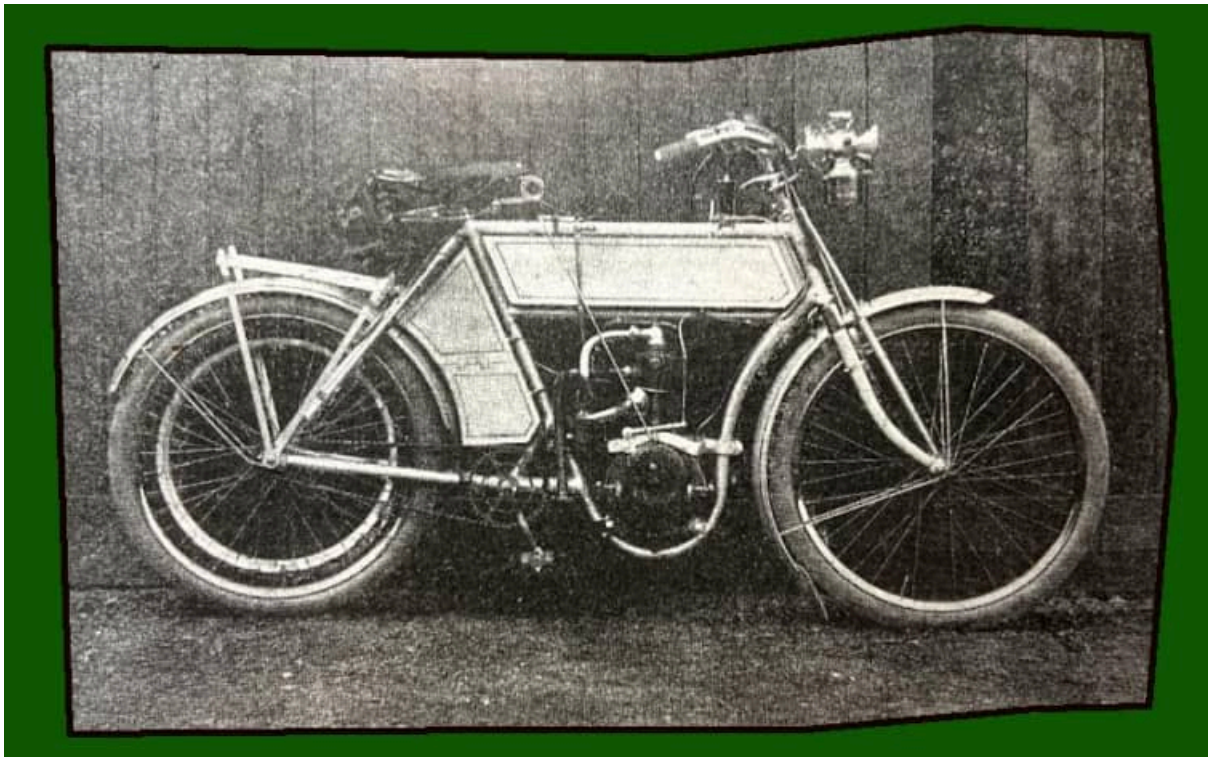
up with a trailer. Also the engine is not screened from the air, as it is with the fore-carriage, and one can carry on a conversation with a passenger much more comfortably. From experience I should recommend Messrs Mills & Fulford, as they themselves are using a 2¾hp Excelsior motor. I recently paid them a visit with a friend, and Mr Mills took us in the side-car, himself on the motor, and also a workman on the back axle, all round Coventry, over the tram lines and rough stone setts, in order to prove that it was strong enough. I think this was a convincing enough argument. I am in no way connected with the □ðrm, but I am using one of their side-cars myself, and am perfectly satis□ðed with it, therefore I have no hesitation in recommending it. **Fred A Austin**."

"THE MACHINE ILLUSTRATED [below] is built by the Beauchamp Cycle and Motor Co, Chapel Street. Prahran, Melbourne. Every part except the front hub and cranks was made at the company's works. The motor is of 2hp, belt drive and □ðtted with spray carburetter and high-tension electric ignition. Duplex front forks are □ðtted. On the whole the machine is well designed and does credit to the makers."



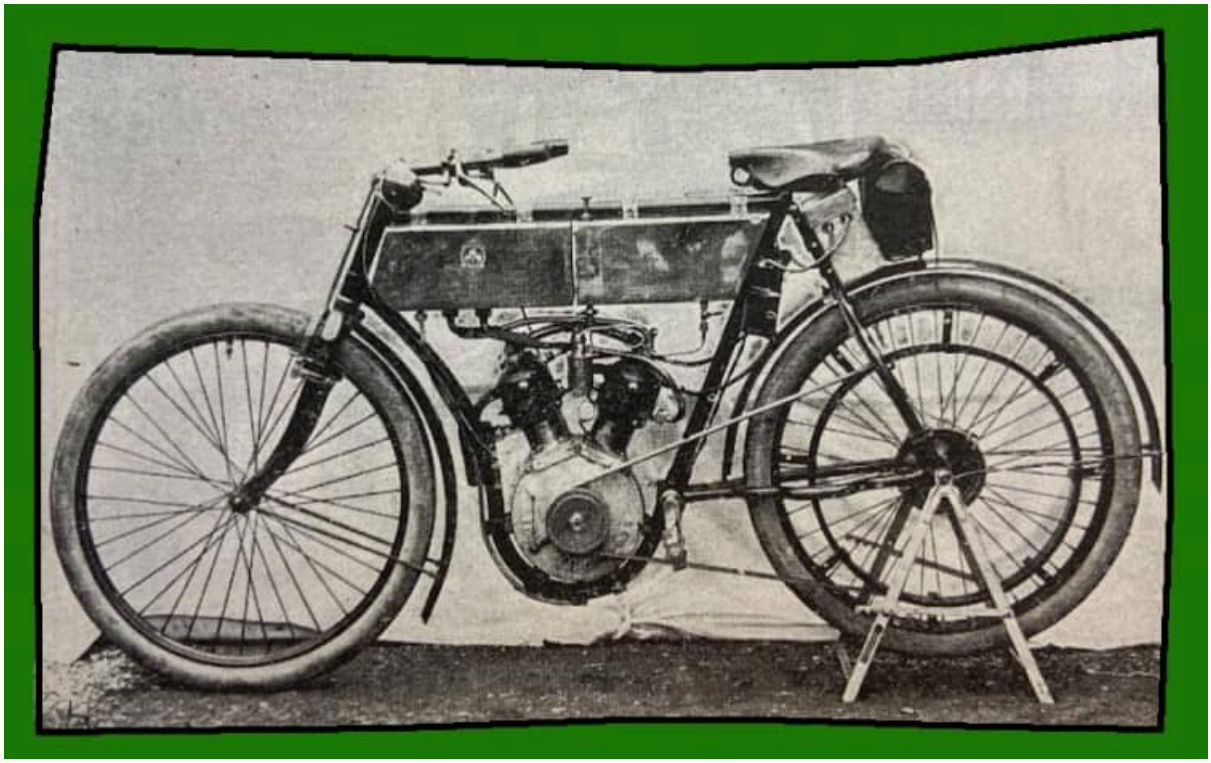
"The 'Beauchamp', an Australian-built Motor-Bicycle."

"THE MACHINE ILLUSTRATED [below] is made by Strettons, Cheltenham, and is named the 'Millionmobile'. The engine is an 'Aster', of 3¼hp, □ðtted with Longuemare carburetter and trembler coil ignition. The shape of the frame and length of base (57in) are rather out of common. The engine is attached to the loop of frame on two solid steel forgings bolted to the tubes, and it also rests upon the bottom of the loop frame on two spring-steel clips. Ample mudguards are □ðtted, and petrol and oil storage are provided for over 100 miles running. The tyres are Palmer motor-bicycle type, 28×2½in. Transmission is by Lycett's V-belt, with patent eyletted rivets. There are special levers for actuating the carburetter, one working inside, the other for moving the air and gas inlets."



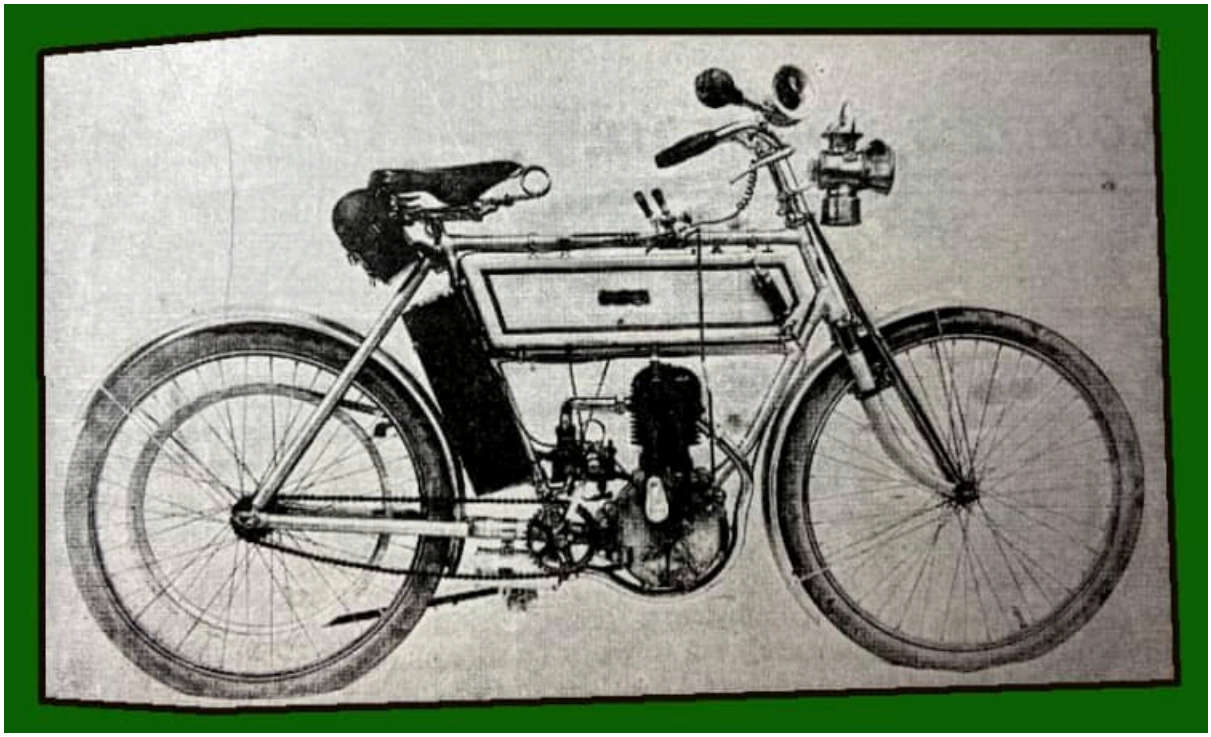
“The 3½hp ‘Millionmobile’.”

“THE TWO-CYLINDER‘IRIS’BICYCLEisdriven by a 5hp water-cooled motor and has a free engineclutch. It weighs150lb, and will carry water suīicient for a run of 200 miles. As will be noticed, it has no chain. Fixed foot-rests are provided, and these are □ðttedwithpedals simply to allow for a variation of the position of the foot of rider. A good show of ‘Iris’ bicycles will be exhibited at the Stanley. Themotor is mounted in a specially designed loop frame, and drives by a □ðatbelt.Theaccumulators are carried in a box on the back forks. Two brakes are provided, viz, a rim brake on the front wheel and a band brake on the rear hub. Themachine is started in the manner usual with pedalless motor-bicycles by running alongside for a few yards and then jumping in the saddle. Thegreat reserve of power enables the machine to take the steepest of hills and for a side or fore-carriage attachment the power is ample.”



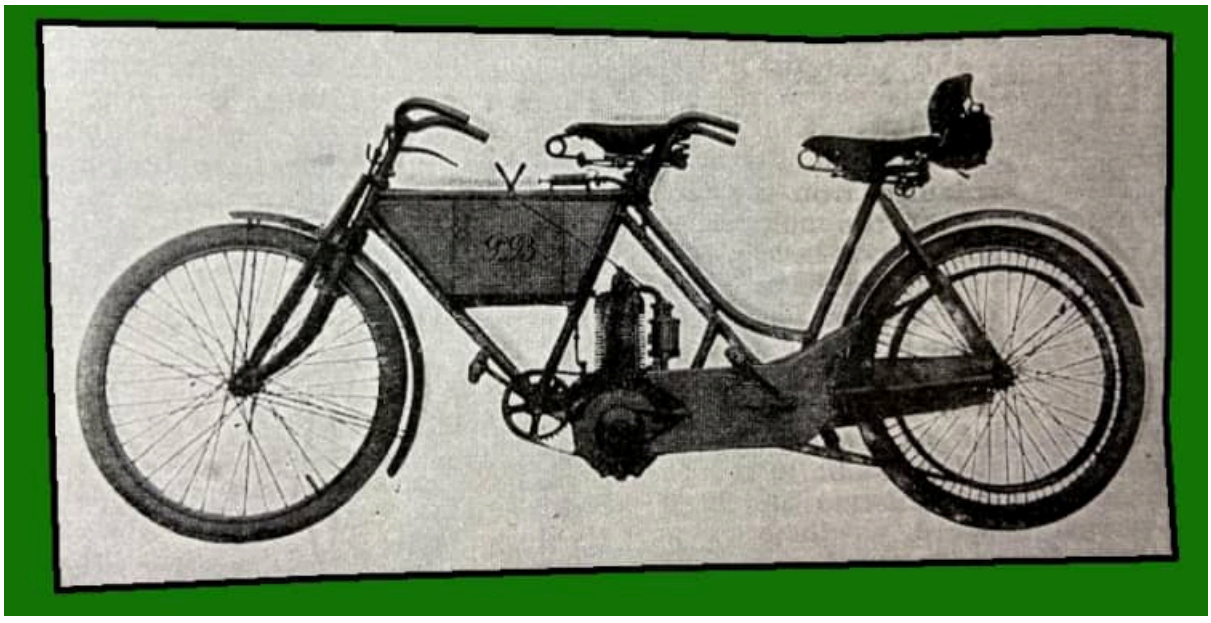
“The 5hp ‘Iris’ with water-cooled cylinders.”

“THE BENTINCK, MADE BY E G Young and Co, London Road, Nottingham, is equipped with a 3½hp Minerva motor, with mechanical inlet valve. The frame has a double horizontal tube, and the motor is securely held in lugs. The regulating levers have ratchet adjustments, and the petrol tank carries 2 gallons and the lubricating oil tank ½ gallon. There are two accumulators, provided with a two-way switch, so that either can be used. The carburetter is a Longuemare. The induction coil is enclosed in the case behind the diagonal. Duplex front forks are also □ötted, and the exhaust is carried well down below the frame.”



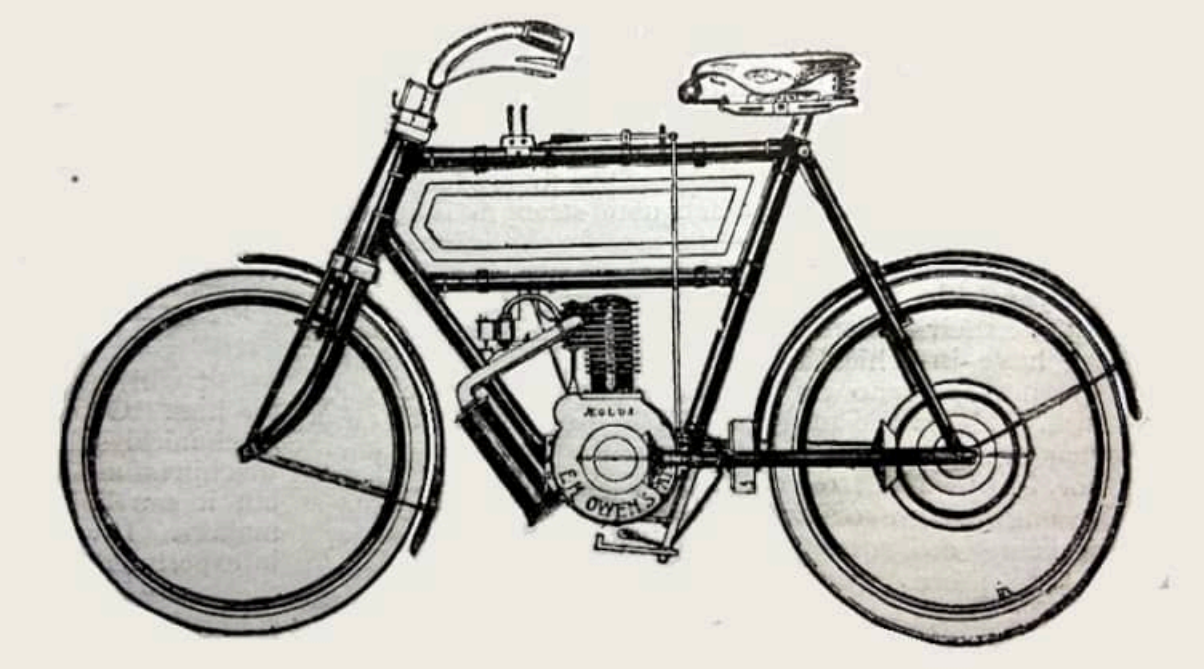
“The Bentinck Motor-Bicycle.”

“A TANDEMMOTOR-BICYCLEWITHdroppedrear frame is made by Pitcher and Bartlett, 119A, Holland Park Avenue, London,W. Themotor □ðttediseither a MMC 2¾hp or a 2¾ or 3½hp ‘Minerva’, according to the purchaser’s wishes. It is mounted vertically in a central position in the frame and drives by belt—either V or the 1¼in □ðattype.Thecarburetter is a Longuemare. Provisionis made for carrying 1½gallons of petrol and lubricating oil suīicient for 200 miles, and ignition is by P&Raccumulator and BasséeMichel coil. Thereare two brakes, the application of one cutting oī the sparkingcurrent simultaneously. Thecontrol leversare mounted in a convenient position forward on the horizontal tube. Thewheels are 28in diameter □ðttedwith2½in tyres. Price of the machine is £60.”



“The PBMotor-tandem.”

“THE PRINCIPALPOINTSOF INTERESTinthe Aeolus machine are the novel means by which the transmission of the power is eīected. Theengine, which rotates in the same direction as the line of travel, is securely bolted in a vertical position to the frame. Upon an extension of the engine crankshaft is a bevel wheel, at right angles to which is □ðttedalightshaft having at either bevel wheels in constant mesh with that on the crankshaft and a toothed wheel □ðxedtothehub of the rear road wheel. All these wheels are entirely encased and run in grease.A special form of clutch is □ðttedonthepropeller shaft, operated by the hand lever in starting, and the speed is usually controlled foot pedal, providing a free engine for traīic, descending hills, etc. The transmission is thus direct to the road wheel with no appreciable loss of power, far less than by ordinary methods. Footrests* are provided, enhancing the rider’s comfort, but if desired, ordinary pedals and chain can be had instead. Theengine is of the company’s latest type with extra strong crankshaft; and the valves, which are mechanically-operated, are placed across the front of the motor, instead of at the side as usual, consequently receiving a full current of air for cooling. Thecylinder and head are a single casting. A spray carburetter of special design is □ðtted,andtheignition is by means of brush contact with accumulator and trembler coil…The makers are the Motor Transport Co, Comeragh Road, London, W.”



TheAeolus boasted a ‘free-engine’ clutch allowing the engine to be run at a standstill. The marque only survived for a couple of years, but this 492cc should be remembered as a pioneer of shaft drive.

“HILL-CLIMBING IN LIVERPOOL.Thesteepest street in Liverpool is said to be Havelock Street, Everton, with a. gradient of 1 in 5.75. It is surfaced with cobbles, and has a right-angled turn at the bottom, so that riding up on a motor-cycle has hitherto been thought to be impossible. J Edge, the well-known An□ðelder, whoownsa Bat motorcycle, and is captain of the Liverpool Motor Cycling Club, announced his intention of trying his luck on the hill at 2pm on Saturday, and quite a crowd gathered in anticipation of a great struggle against failure. As it happened, rain fell for most of the morning, and this made the turn at the bottom extra bad. At his □ðrst attempt Edgecame along well, and then essayedthe turn, but his machine skidded away, and he had to come oī. Thenext attempt resulted in the same fate; but ‘third time lucky’, and the corner was negotiated somewhat trickily but successfully, and then, increasing pace, the

machine went up between the pillars about half way up the hill, and then to the top in □ðnestyle. Edgeis thus the □ðrstmotor-cyclistto surmount this steep little pitch."

"AN INSPECTIONOFTHEinsideof the combustion chamber of a small motor that has been in use for a considerable period will show that a more or less thick deposit of burnt up lubricating oil has formed on the cylinder walls and the interior of the combustion head. It may not be generallyknown that this deposit directly aīects the eīicient running of the motor, inasmuch as it tends to cause overheating, especially in cases where the motor is mounted in rather a sheltered position on the frame. This lining of charred oil is a perfect non-conductor of heat and prevents a certain amount of heat—that it is important to get rid of—from being carried to the radiators. It is one advantage of having a detachable combustion head that it is an easy matter to clear away this deposit. Although it is of a hard cement-like nature, a fairly sharp penknife will remove it by careful scraping. The head of the piston also gets encrusted, but to clean this properly the cylinder must be taken oī. If an abnormal amount of charred oil is found in the combustion chamber it will show that oil gets past the piston freely, and that the rings want renewing."

"METALLICPAINTFORMOTORPARTS. A new preparation that should be welcomed by motorists who are troubled with parts of their engines getting rusty is 'Silverskin' just introduced by Messrs Kay Bros, Stockport. It gives a silver-like coating to parts such as the radiators, crank cases, supply pipes, etc. It is claimed to be water and oil proof, and practically heat proof. It was found that the 'Silverskin' had the same conductivity as the metal itself. It is useful for coating electric wires and cables, forming an excellent protective coating. We have a sample of this preparation now undergoing a test."

THE SPEED TRIALS AT SOUTHPORT.

"QUITE UNIQUE IN ITSCONCEPTIONis the meeting which was held last Friday and Saturday at Southport on the Lancashire coast. As a rule, oīicialdom looks some-what askance at the motor-driven vehicle; its owner demands such perfection of roads, and (so it is asserted) does not hesitate to travel fast and so cause the surface to be sucked up. In fact, oīicialdom, so far, has gone out of its way to □ðndcauseforcomplaint against the motor-car, but the Mayor and Corporation of Southport have taken the □ðrststepto-wardsthe alteration of all this, and by handing over the whole of the magni□ðcentparadeina suitable condition for motor racing, have shown that they are fully alive to the important part which the motorcar must, of necessity, play in the future, and that they are desirous of actively encouragingthe movement. With these ends in view, neither expense nor trouble had been spared to provide a suitable course…The promenade on the sea-front consists of an asphalt road, with footways on either side. It is quite a mile in length, and practically □ðat…TheCorporationhadrepairedall the defective spots in the roadway, and the gutters had been □ðlledupwithasphalt, so as to strike a level from the pavement to the centre of the road. Thus no kerbing is to be seen from end to end, because the asphalt now stretches from side to side, with a very slight crown in the centre. The width in the

“The trials at Southport (L-R)Getting the machines ready. Protection from the elements. Tessier and the 62¾mph Bat.”

narrowest part is 40ft, and in the widest 60ft. All obstructing lamp posts and electric light standards had been removed, and even the big fountain which stood by the pier entrance had gone for the time being. From end to end of the course a heavy timber barrier was erected to keep the crowds back, and a further wise provision was that against dogs, wire netting having been carried along on the barriers. Southport having gone so far towards providing an entertaining programme, the Automobile Club and the Liverpool Self-Propelled Traïic Association could not but enter into their part of it with vigour and verve, and, so well had the programme been planned, that no less than 189 entries were received.” While the trials were dominated by cars, there were four motor cycle events: a scratch race for lightweights up to 114lb/70x70mm (269cc) with eight entries ; a handicap for bikes up to 170lb/84x84mm (465cc) with 21 entries; a local handicap in the same class but restricted to Lancashire riders with 12 entries; and an open scratch race for any bike up to 170lb with 18 entries. The length of the course was “seven furlongs with a further 300 yards at the top end for slowing down”. [For the bene□ðtofyoungerreaders, a furlong is 220 yards, or 40 rods, or 10 chains—Ed.] “The start was set down for 11.45, but just before that hour rain fell in torrents, and as the machines were out in the open against the railings of the Parade, overcoats, mackintoshes and ground sheets were, for a few minutes, at a premium. By a stroke of luck, some cute rider noticed that a large house on the Parade was empty, and when he ran his machine into the porch many followed his example, whilst the late ones discovered a covered side entrance and an open gate which led to the rear garden where there was a □ðnecyclehouse. This at once became the receptacle of tool bags and accessories, and on the whole the motorcyclists came oī well, thanks to their enterprise…After the heats on the Friday, “the Mayor and Mayoress (Mr and Mrs TTL Scarisbrick) invited about 35 members of the Corporation, of the Automobile Clubs, and of the Press to Greaves Hall, about □ðvemilesout, to dinner. The guests met in the Mayor’s Parlour at the Town Hall, and were taken out in carriages, the weather now being □ðner. Theexperiencewasunique in every way. Greaves Hall is only about □ðveyearsold, but is built on the lines of an old baronial mansion. The guests were received by the Mayor and Mayoress, and the tables were graced with the presence of other lady members of the Mayor’s family. The function was most enjoyable, and, with a few unpretentious speeches, the proceedings were carried on till past eleven o’clock…At four o’clock on Saturday morning the rain was falling in torrents. At breakfast time a raw chilly wind was blowing up the track, and many an oīicial could be seen during the day clad in his heavy motor clothing…” The Manchester Courier and Lancashire General Advertiser reported: “…the barriers along the whole length of the promenade track were thickly lined by

spectators. As the hours advanced the weather improved considerably and an occasional gleam of sunshine did something to compensate for the powerful wind which, as on the previous day, swept along the course dead in the teeth of competitors. By half-past two it was estimated that 50,000 spectators were present, the scene along the front, as viewed from the lofty elevation of the press stand, being one to be remembered. The grandstands erected in front of the hotels and principal houses were packed with fashionably-dressed ladies and gentlemen whilst behind the stout barriers along the roadside thousands men, women, and children struggled to catch a glimpse of the competitors as they □ðewpastontheir machines." Back to The Motor: "The □ðrsteventswerethe □ðnalsofthe motorcycle races. In the contest for the small machines the opponents were Richards (Minerva), JSpencer (Ariel), Crundall (Humber) and Wright (Ormonde). A very good start was eīected and Spencer pedalled all he knew up to the permitted limit, and thus gained a good twenty yards. This gap the others were unable to dose. Crundall worked up into second place, and then, by the Pier, Richards came up, travelling fast. He got into second position, but could not overhaul Spencer, who won by about three yards, the same distance separating Richards and Crundall. The force of the wind will be gauged when it is

"Start for the □ðnalofthemotorcycle handicap."

stated that Spencer'stime was 2min, equivalent to a speed of about 26mph. For the handicap there were □ðvecompetitors: S Wright (Excelsior), H Rignold (Riley) and B Yates (Humber) on scratch, T Tessier Bat), with 5sec start, and JF Crundall Humber) with 10sec. The scratch men soon caught and passed their opponents, and in processional order, with a gap of about ten yards between each pair, they □ðnishedinthis order: Wright, □ðrst, 1min37⅗sec, Rignold, Yates, Crundall and Tessier bringing up the rear. A very hot □ðghtwaswitnessed between Wright, Yates, Rignold and Crundall in the □ðnaloftthehigh powered class. Crundall (Humber) had the most powerful engine, its dimensions being 89mm bore by 102mm stroke [634cc]. Yates's Humber engine was 89x89mm [553cc], and those of the other two were 84x84mm [465cc]. There was a capital start, but hard pushing was the order of the day. Crundall at □ðrstforgedahead, but Wright gradually overhauled him, and won by 10 yards in the □ðnetimeof74sec, Crundall being second, and Rignold third. The local handicap was a close race resulting in a for Threlfall in 79⅕sec, with Rignold second and Edgethird. It was afterwards found that Threlfall was ineligible to compete, and we understand that the □ðrstprizehasbeenwithheld. Now came the

open race for motor-cycles of any cylinder capacity that could be packed into the weight limit of 170lb. Weird noises like a concealed □ðreworkdisplayonan extensive scale had been proceeding from the aforementioned porch, and now there was produced Tessier'sBat, with a Soncin engine, measuring 87mm by l08mm [642cc]. Crundall, too, had got a special Humber, 89mm in the bore and 102 in the [663cc], whilst Watson's mysterious Ormonde was no less than 125mm in the bore and 120 the stroke [1,472cc]. It was all engine, and scarcely any bicycle, for it is said to only weigh 111½lb. However,the latter did not get tuned up in time, or its presence might have created a stir." Crundall completed his run in 1min 12⅘sec, ahead of Rignold (1min 21⅕sec), Yates (1min 22⅘sec) and Wright (1min 54⅖sec). "The ordinary programme of events having been completed, the course was reversed, so as to race with the wind, and attempts were made to lower the world's records…Thesensationof those events was Tessier'sperformance on a motor-cycle. He covered the course at the rate of 62.75mph. In the evening the prizes were presented to the successful competitors by the Mayoress."

"A generalview at Southport during the recent motor speed trials."

"SOUTHPORTCORPORATION'SEXPERIMENTwill,without a doubt, open up a new era for motor racing in this country, and those who look to it to provide sport and amusement and (to dive oven deeper) to provide an incentive towards the continuous improvement of the touring car and cycle, will welcome the innovatIon because, up to the present, speed has had to be sternly repressed, and the value of it as a test has been lost. Theuse of the public highway has never been permitted, naturally, and we have a demonstration in the Gordon-Bennett event of all that is entailed if a section of the highway is to be closed for a day for the purpose of a speed contest. And so the only alternative, up to the present, has been the use of a private road. We know what a □ðascooccurredatBexhill, where the Lord of the Manor, in ignorance of his exact rights, permitted racing over a portion of the Marina—anexperiment which has been prevented from repetition by an injunction granted to a householder whose premises fronted the course. TheDuke of Portland has permitted speed runs upon one of the roads at Clipstone, within the

con□ðnesofhisWelbeck estate, but all who have seen that narrow road, suitable only for one car at a time. with but scanty accommodation for sightseers, even presuming that sightseers would go to such a comparatively out-of-the-way place to see speed alone without the single element of sport, will agreethat it is quite useless to attempt to conduct motor racing there. But Southport's Corporation has come forward with a method and, with characteristic energy, has, instead of talking about it, set to work and put it into practice, and as a result, we witnessed a meeting which, even if it fell short of the ideal, at. any rate possessed all the necessary elements to enable it to rival the famous Continental meetings, such as those at Nice and Ostend."

"THE HEREFORDSHIREACHELDahill-climbing contest on Friday last on Dinmore Hill, which is 1¼miles long, with an averagegradient of 1 in 12. It was open only to the motor-cycling members of the club. Thetime was taken from a □ðyingstart;nopedalling was allowed. Owing to the unsettled weather, there were not so many present as there might have been, and only 10 competitors attempted the climb. All managed to get up without pedalling, though it was thought doubtful if all would negotiate the nasty corner half-way up without slackening, especially as the road was greasy. Hall, Quadrant (Quadrant engine, 3hp), 2 min 46sec; Marriott, Marriott (De Dion engine, 2¼hp), 2min 52sec; Ekins, Minton (Minerva engine, 2hp), 2min 57sec; Groom, Excelsior (MMC engine, 2¾hp), 2min 58sec; Simpson, Triumph (Minerva engine, 2hp), 3min 6sec; Godwin, Coventry Eagle (3½hp), 3min 19sec; Langford, Rex(Rexengine, 3hp), 3min 28sec; Passey, Victor (Minerva engine, 2hp), 3min 41sec; Weale, Ariel (Minerva engine, 2hp), 3min 53sec; Chave, Excelsior (MMC engine, 2¾hp), 3min 59sec. It is only fair to Mr Chave to say that he entered the contest unprepared, and upon examination his contact breaker was found very dirty."

"The HerefordshireAC Meet and Hill-Climb. Competitors and oīicials at the top of the hill." (Right)"Group at bottom of Dinmore Hill after the competition."

"THE CUP RACES—APROTEST.Withreference to the disquali□ðcationof my machine in the ACC's meeting on Aug 22nd, I should like to state the facts of the case, and leave your readers to form their own opinion of the fairness of the club's decision. I entered in the □ðvemileshandicap and mile time trials on a machine which, owing to the conditions imposed had to be specially built at a fortnight's notice. In the handicap I won my heat in 7min 26⅗sec, and, after a lapse of about one hour, subsequently won the mile time trial in 1min 15sec, being 4sec faster than any other competitor, and my time beingoīicially marked up on the boards at the track. On getting to my mark for the □ðnalofthe □ðvemiles,Iwas informed I had been disquali□ðedfor not having an eīicient silencer, and this was the □ðrstIheardof my disquali□ðcation.Themachine I rode was of exactly the same type as I have used on the track all the year in races held under the ACC's

rules, and never having had the slightest objections made before, I naturally concluded that the club accepted my de□ðnitionof'eīicient'. On making enquiries of the oīicials as to what they actually meant by 'eīicient', I could get no satisfactory answer, they, in fact, admitting that it might mean anything, and the only reason that machines with silencers that they considered inadequate had been running on the track all the year was that they could not have a representative at every race meeting held in England; in other words, they are not capable of governing motor cycle racing, and the consequence of their incapability is that manufacturers may be put to the expense of building special racing machines which they are led to believe conform to the club's rules, only to □ðnd, as in this case, that after winning an important race they may be disquali□ðed at a moment's notice.
CR Collier, For H Collier & Sons, Plumstead."

"SIR,—IN REPLY TO 'North Road', who wrote in The Motor to say that police trap notices are a mistake is utterly absurd, I should like some proof as to the absurdity. There is no 'if ' about my having ridden 4,688 miles (now 5,132), and why 'North Road' should doubt it I am unable to see. I would ask him to do me the honour to believe me when I tell him that I have never yet seen a police trap in either England, Scotland, or Ireland; nor has an oīicer ever spoken to me about my speed. I have always found the police most reasonable with regard to speed, and only a short time ago a superintendent told me he could see no harm in any speed which was not a danger to the public. Anyone going down a slope at more than 12mph, in my opinion either requires to be shut up, as not being able to take care of himself, or, if sane, □ðned. With regard to motor cads and law breakers, I may say that, fortunately, the former are not very common, and belong almost entirely to a few of the car users; but the latter to car and cycle users, and comprise nearly all not included in the former.
Alfred Meigh"

"SIR,—I FOUND BY a few simple experiments that the diīiculty in starting with stale petrol in a surface carburetter is chie□ðy due to the fact that after the machine has been standing still for some time the air space in the carburetter is not full of petrol vapour but of air. Hence □ðring cannot occur till all this air has been pumped out by the rotation of the engine. If a few bubbles of ordinary illuminating gas are passed down the chimney of the carburetter the engine will start with the □ðrst turn of the pedals. A simpler plan to get easy starting is to blow air down the carburetter chimney. A more convenient plan is to arrange an ordinary india-rubber ball pump, which remains permanently attached to the top of the chimney. A few compressions of the ball are ample to □ðll the air space in the carburetter with explosive vapour and ensure easy starting.
EH Hankin, Agra, India."

"SIR,—IN YOUR ISSUE of September 16th in reply to V Burrow (Morpeth) it is stated that the average life of a motor. cycle is 8,000 to 10,000 miles. This estimate seems to me rather wide of the mark, and it is a very interesting and important point to arrive at a correct conclusion about. A motor expert who often changes his mount cannot, in my opinion, be as good a judge as a private owner who usually sticks to one machine. If 8,000 miles were all one could guarantee how could one justi□ðably recommend a motorcycle to a medical man? Many country doctors average 20 miles or more a day on their rounds, and this would reduce a motor to scrap iron in a little over a year, by your estimate. My experience is that a good motor will do much more, and I have one that has done over 13,000 miles without turning a hair. If your expert would kindly let readers know the make of machine that has worn out in 8,000 miles we should be much obliged, and know what to avoid. With regard to the use of motorcycles for country medical men, I can only say that they are simply invaluable and will soon become an absolute necessity

in these days of keen competition and rapid locomotion.
‘Scalpel’.
[In our reply to Mr Burrow we expressed the opinion that 10,000 miles was as much as one could reasonably expect from a motor without having to replace at least some wearing part, such as a bearing bush, piston rings, cam or pulley. Of course, the main components of the motor will last inde□ðnitely. Doubtless in the hands of a very careful rider who attended well to the lubrication and did not strain the motor by forcing it up hills with spark forward and full throttle a greater distance than 10,000 miles might be accomplished—Ed.]”

“THE VALUE OF THE MOTORCYCLE as a medium of locomotion and an aid to geographical knowledge is very strikingly exhibited just now in the Quadrant Cycle Co’s window in Newgate Street wherein is shown a 3hp Quadrant machine that has just been through a tour of 2,172 miles in one month. The rider was the Rev R Oakley, of High Wycombe. He commenced his tour on August 25th and made for Oxford, Gloucester and Chepstow and thence to Cardiī, Swansea and Carmarthen, 205 miles, reaching here 24 hours after the start. Next day was to Malvern via the Herefordshire Beacon, Kidderminster, Shrewsbury, Chester, Warrington, Preston and right through the Lake District to Selkirk. He then turned south for Twickenham near London, going via Moīatt and over the Kirkstone Pass. He ran into a ford at night in this district, but did not injure the machine. He reached Twickenham, but not without a smash through running into a wall in the dark, breaking a pedal and lamp. After having these details repaired he ran on to Andover, Salisbury to Exeter, and made this town a centre for local runs. The return was via Crediton, Tiverton and Wellington, Southampton. Chichester, Brighton, London and home to High Wycombe. There were four separate day runs of over 200 miles each, the longest being from Grasmere to Watford, 264 miles. The machine alone weighed 133lb, luggage, etc, 941b, rider 13 stone 10lb, totalling 419lb. Rev Oakley’s trip is “□ðagged” outwith little red □ðags on a large map of England, and there are very few patches on the map which are without a □ðag: practically in the short space of a month—during which the average holiday maker explores part or the whole of one small county—the motorcycle has taken its rider throughout the length and breadth of his native land. The map, with the machine rigged out for the road in the background, is surrounded with autographed picture postcards from the various places stopped at en route. Large crowds have been gathering round the window all last week.”

“THAT MYSTERIOUS MALADY known to the vulgar as ‘the hump’ and to the re□ðned as ‘the blues’ is stated to be disappearing since the advent of the motor.”

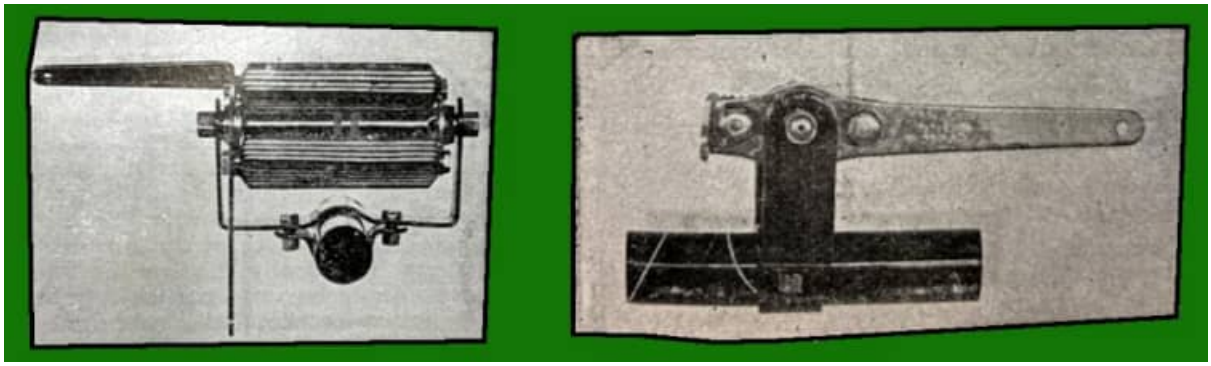
“MESSRS BROWN BROS, GREAT Eastern Street, London, EC, are now supplying a motor-bicycle set, comprising the following parts: Motor 2¾hp, 74x76mm [327cc]. Tank with oil pump and □ðttings, such as throttle and advance, sparking rods, clips, tubes and unions. The carburetter is a genuine model E Longuemare. Bassée Michel square non-trembler coil. Accumulator of 18 ampere hours capacity. High and low tension wires, sparking plug, interrupter, switch handle, 7ft 6in V-belting, belt rim, frame, handlebar, seat pillar. The sets are only supplied to the trade.”

“Sam Wright and Harry Martin. Two riders of Excelsior motor-bicycles who have excelled during the year’s motor racing.”

“IS THEAUTOMATICINLETvalvesuperior or inferior to the mechanically operated valve? This question, which many makers put to themselves at the present day, says La Locomotion, involves two very distinct points of view, viz, simplicity and eīiciency. In the □ðrstcasethe question is immediately decided, because it is quite evident to everyonethat the automatic valve is of simpler construction than the mechanically operated valve: its use, then, is recommendable for small motors where simplicity is an essential. Secondly, as to eīiciency. In a communication to the French Society of Civil Engineers, May 17, 1901, dealing with improvements and modi□ðcationsforaugmenting the eīiciency and speci□ðcpowerofinternal combustion engines, the following remarks were made respecting automatic inlet valves: ‘Our colleague also alludes to loss caused by inertia of the inlet valve: it does not shut instantaneously at the compressing stroke of the piston. Thus, during this period, part of the sucked explosive mixture is forced into the air through the carburetter: the remedy for this loss would be mechanical control of the suction valveby a mechanism identical to that of the exhaust valve.’ Thefollowing year the idea was applied to all their motors by the German company which constructs the Mercedes car. Since then mechanical inlet valves have made their mark in the leading French motor works. As many makers, however, are not yet convinced of their advantages, judging from the discussion at the second International Congress of Automobilism (June, 1903), it will be useful to draw attention to the following experiment, which can be made by anyone: Place the nose near the opening of the supply pipe of a motor with automatic valve, and one will □ðndthatthereis always a characteristic odour of petrol vapour, and a blowing back is noticeable, more especially in certain motors □ðttedwithtoo weak a spring on the automatic valve, and supplied from a spray carburetter. This expulsion of explosive

mixture is emphasised to such an extent as to be accompanied by a regular spitting of condensed petrol: this is never met with in motors with governed valves."

"HANDLEBAR CONTROL, EXCELLENT AS itis, must have a limited scope for application. The ingenious devices □ðtted on the handle-bar for actuating the brakes, valves, throttle, etc, are too numerous to mention, but inventors must not lose sight of the fact that nature has only provided man with one pair of hands, whereas there are enough devices on the handlebar in many makes of machines to □ðnd work for several pairs when occasion arises for simultaneous action at a critical moment. It is clear that there is an opening for a simple and thoroughly reliable form of foot control, these useful members having at present no duty assigned to them on certain types of motorcycles which are becoming increasingly popular. Our illustrations (which are from photographs of a recently patented model) show how pedal control ma be installed on Trimos, Quads and fore-carriages in general having side tube frames. The inventor of the following system is Mr VA Holroyd, Earlsdon, Coventry, and it is one that strikes us as being particularly simple and eīective. The arrangement is as follows: An ordinary cycle pedal is mounted so that it is free to revolve in a bracket clipped on to the side tube. In its normal position when at rest, this pedal is inclined at the most comfortable angle for the rider's foot and serves as a foot rest. By depressing the foot (and pedal) horizontally, movement is imparted to the lever (of which two kinds are shown) and thence the movement is transmitted to the exhaust valve lifter, throttle or whatever part it is desired to open, the reverse movement closing it again. It may be reasonably argued that pedal control is more suitably adapted to such 'positive' movements as brake application, clutch and variable speed gear movements, whereas for throttle and spark advance it is desirable to regulate these by hand by reason of the greater sensitivity of adjustment obtainable. For the popular 'Trimo' class or vehicle, which promises in the near future to be equipped with variable speed gear and free engine clutch, this system should □ðnd an extensive □ðeld of application."



"End view of controlling pedal at rest." (Right) "Side view of pedal horizontal and at work." This, it seems, was the □ðrst step towards foot controls for rear brake and gear change.

"0 FALB, FALB! * WHY WERT thou not consulted by the German Motor Club before thou crossed the Styx? Did not thy weather prophecies come true—now and then? You have predicted what was in store for us in Berlin on the 18th. Yet there is no knowing. Perhaps the late Falb was no friend of the motor, in which case he might have wickedly foretold glorious weather just to spite us. The Westend trotting course is no ideal place for a motor race at the best of times, but the copious and persistent rain of the morning and the days and nights previously had converted it into a veritable swamp. A course a mile long, ankle-deep in yellow mud, plentifully bestrewn with pools and possessing no banking worthy of respect, this was the scene of Berlin's □ðrst motor races under the auspices of the German Automobile Club. The weather failed to put a damper on moting enthusiasts; they moted down, cabbed down, trained down, trammed down,

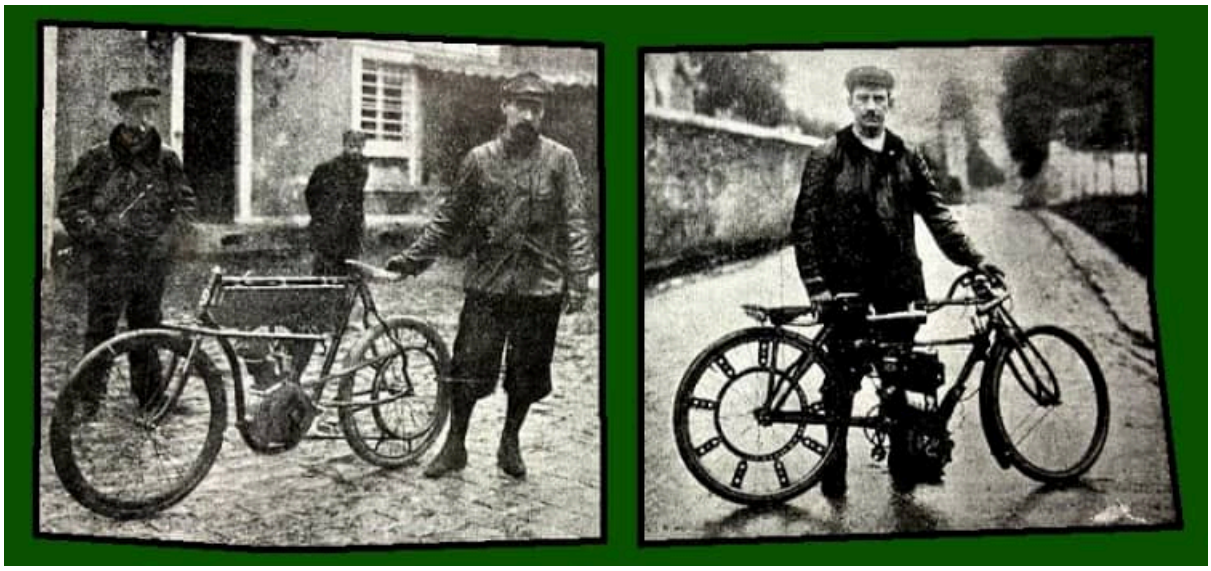
braked down, walked down in hundreds, took up their stand at the barrier' turned up their mackintosh collars, opened their umbrellas, and bade the elements to do their worst. Proceedings opened with a motorcycle event for professionals and amateurs. Nine heroes lined up. The condition was that the cycles should be pedalled into motion. It was all very well to talk about setting the motors going by pedalling, but another thing to do it. Herr Wondrick, astride a 'Laurin & Clement', which bore the number 17 vigorously got to work, and after truly terri□ðc exertions succeeded in conveying the impression that he was moving. Then another 'put his back into it', and was rewarded with like success. Similarly a third. As for the rest, they—stuck in the mud! Wondrick having secured the lead, retained it to the end, ploughing through .the □ðve' miles of swamp in 14min 9sec. A 'Progress' made a bad second, and a 'Presto' a worse third."
***** Rudolf Falb was an Austrian priest with an interest in astronomy, earthquakes and meteorology. He was famous for apparently correct predictions of several seismic events and long-term weather forecasting.

"Start for the motorcycle race in the swamp at West End Trotting Course, Berlin."

"ONE GENERALLY EXPECTS TO □ðnd something sensational in the columns of the halfpenny Press, but as a choice specimen of clap-trap the following culled from the Evening News would be diīicult to beat. The paragraph is headed 'Bullet-proof War Cycles' and says: 'The German War Department has given instructions for the manufacture of 100 motor-cycles of a peculiar character for scouting purposes. The wheels are protected by a covering of steel suīiciently strong to stop the ordinary ri□ðe bullet. The motive tower is to be a small battery capable of carrying the machine 100 miles without recharging.' Here then we have what thousands of people are waiting for. The idea of a small battery storing a vast amount of electrical power is delightful. The best that has been done up to this discovery is a battery scaling about 1½ tons. Edison will assuredly now have to look to his laurels. The pity is that so many people believe such stuī as the above, and immediately worry the motor papers as to where such machines can be obtained, and full details as to price. We have only to say that the millennium is not yet!"

"THE FLYING KILOMETRE TRIAL Sorganised by Le Monde Sportif, which were to have been held at Dourdan last Thursday, were unfortunately interrupted and □ðnally stopped by persistent rain: only a few trials could be run oī, the remainder being postponed till Thursday next…the trials were open to all classes of motorcycles and cars, tourists and racer alike. One hundred and seventeen entries were received, including 57 motorcycles…The course selected was a country road about two miles from Dourdan with a good surface, free from curves, and some 40ft in width; sloping banks on either side aīorded an ideal vantage ground for spectators. The events completed last Thursday included the touring motorcycle class…Results as follows (¼ litre

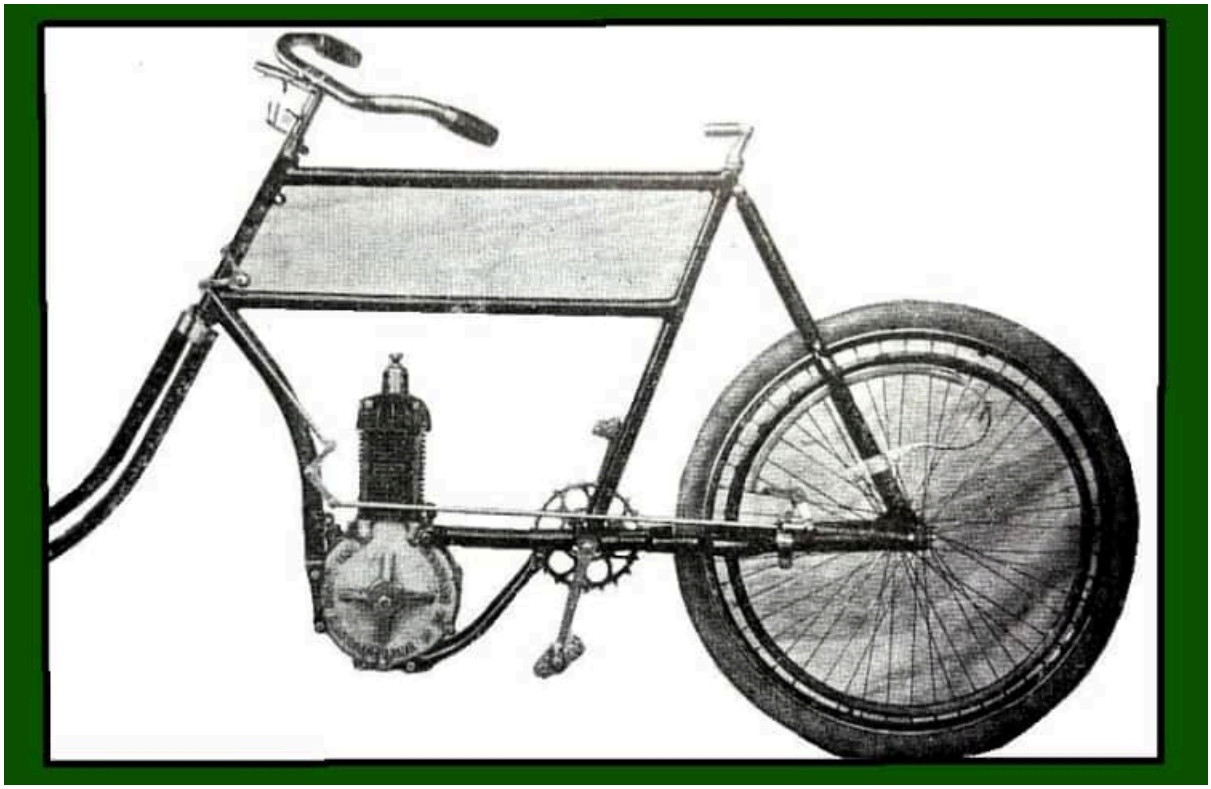
cylinder capacity): 1, Momo (Peugeot),47⅕sec); 2, Lanfranchi (Peugeot),48sec; 3, Sencier (Moto-Cardan), 49⅖sec."



"Novelties seen at Dourdan. Motor-bicycle with handle-bars curiously placed." (Right)"Bucquet with his novel Werner with elastic wheels."

"Photographed at Dourdan. Starting one of the motor-bicycle trials." (Right)"Mme Couet, a lady motor-bicyclist competitor."

"THE LION CYCLE CO, London Road, South Lowestoft, have just introduced a new form of expanding brake for motor-cycles. There is a shoe made of steel which embraces nearly a third of the circumference of the belt rim. This shoe is lined with leather or □ðbreandisput into action by means of a lever movement which can be operated by hand or foot. One end of the brake shoe is secured by a □ðatspringtoa clip which grips one of the back stays. At the other end there is a lever movement which causes the shoe to expand and grip the belt rim. The makers claim that the brake has been thoroughly tested and will hold a fore-carriage with two heavy riders on the steepest hills with ease."



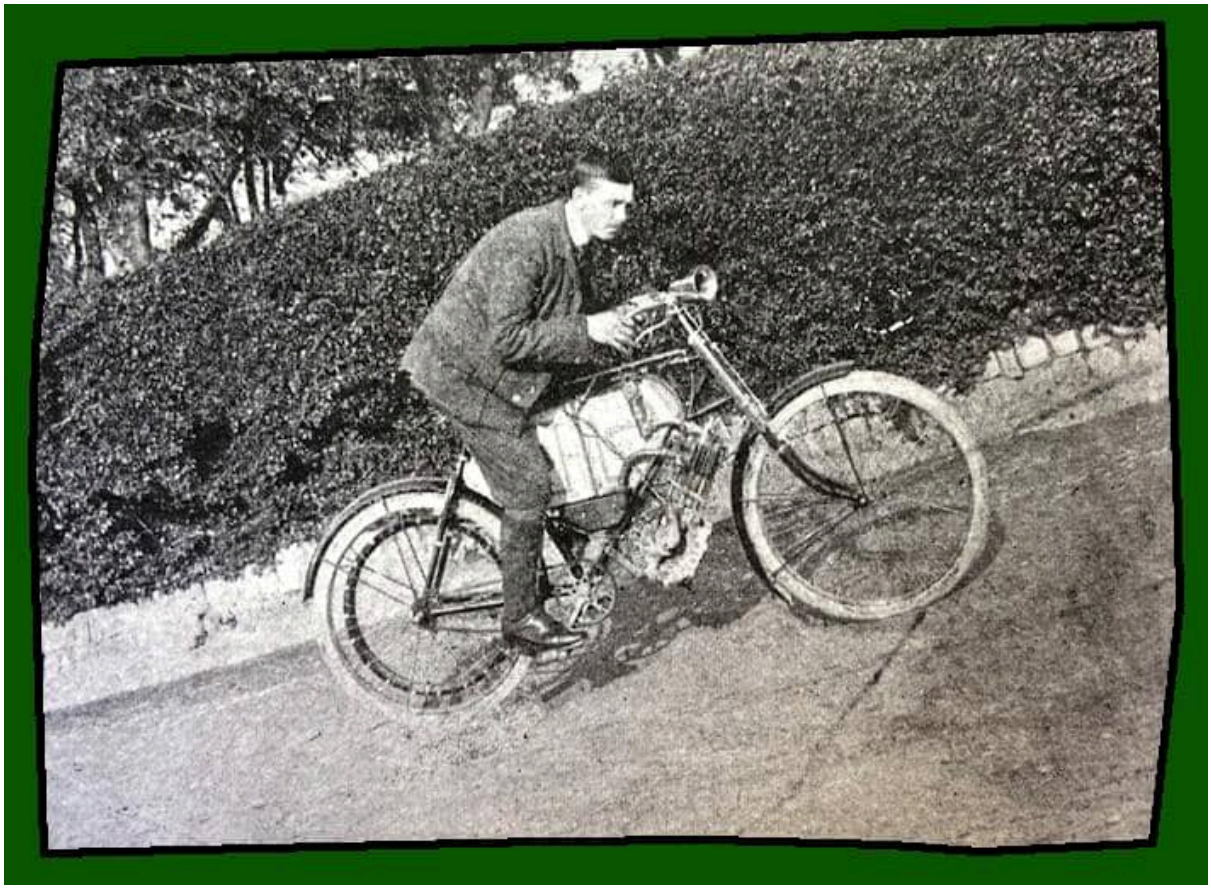
“New expanding brake for motor-bicycles.”

“ON FRIDAY WHEN AT the works of the Centaur Cycle Co, Coventry, we were aīorded an opportunity of inspecting the new motor-bicycle introduced by that company. The most notable feature of the machine is that the engine is built up as part of the frame. This is arranged by the method of bolting the silencer to the bottom of the head-tube, and thus dispensing with the down tube. The engine is of 3hp, with mechanically operated valves, and it is claimed that the position of valves and silencer is so arranged as to allow of the maximum cooling eīect being attained.”

“THOSE OF OUR FOREFATHERS who were responsible for such roads as the one up Westerham Hill cannot be congratulated on their ability as road engineers. There is no earthly reason why the gradient should exceed one in □ðfteen anywhere if it had been properly laid out. Horses and motors suīer alike, and it is a wonder some of the former do not drop dead under the strain of hauling loads up one in seven for a considerable distance.”

“‘WHY DO I BELIEVE in a powerful engine?’ said a well-known cyclist in response to our query. ‘Because one has power in reserve. Even if the engine be of high horse-power it is possible to run it at moderate speeds by retarding the sparking or closing the throttle. Where its advantage lies is, of course, in tackling stiī hills or in facing head winds. And the glorious knowledge that you have high speed when required! Yes, big engines have their disadvantages, but their advantages far outweigh these.’ Thus speaks a motor cyclist whose experience dates back to the earliest days of the 1¾hp front driver.”

“THIRTY-NINE MOTOR CARS and 54 motor-bicycles were observed to pass through Redhill on the Brighton Road between nine and one on the morning of Sunday, October 18th: during the same hours 34 cars and 34 motor-bicycles passed through Reigate.”



"Mr L Whatley, the winner of the recent Bath hill-climbing contest, on his Excelsior Motor-Bicycle."

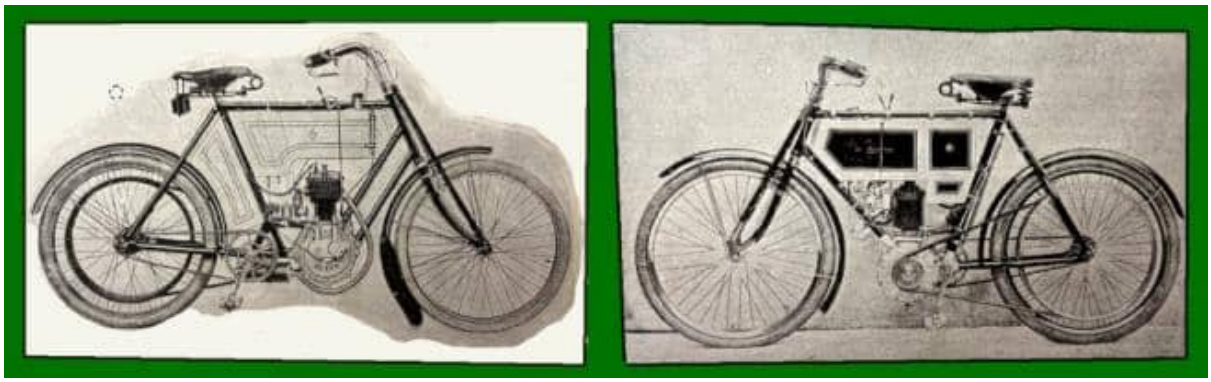
THE SHOWS.

Some Novel Features to be looked for in 1904 Machines and Accessories.

The Stanley Show, Agricultural Hall, Islington, and the National Cycle and Motor Show, Crystal Palace, Sydenham, both open their doors to the public on Friday, November 20th and close on Saturday night, November 21th. Motor Bicycles will be numerously exhibited at both Shows.

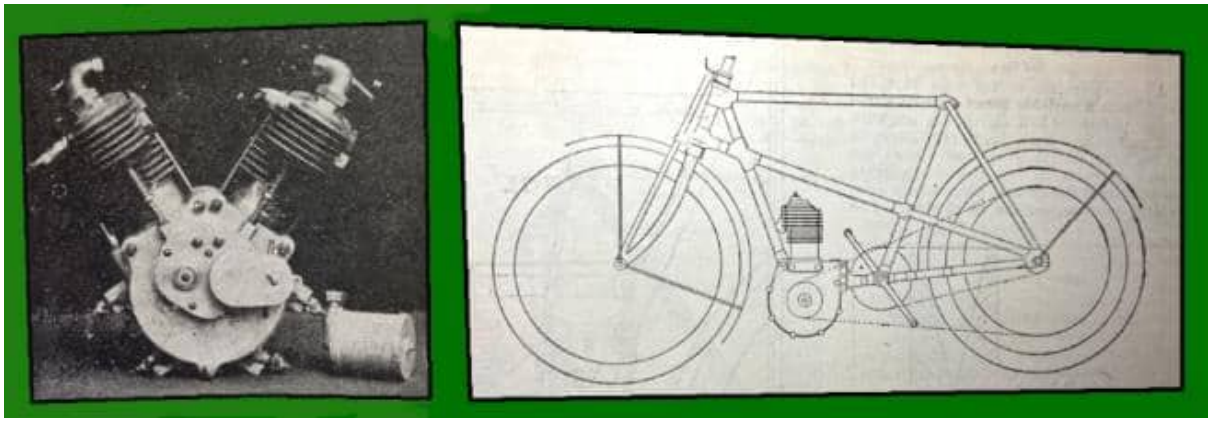
BRADBURY&CO WILL SHOW 'Peerless' motor-bicycles. These will be □ðttedwith2¾hp motors instead of 2½hp as formerly. Two accumulators will be □ðtted, also an improved contact breaker, ratchet levers and many small detail improvements…**Bransom, Kent& Co** will exhibit their novelties. The new Longuemare carburetter with automatic air regulator will be a strong line, and the □ðrmare also showing an automatic air regulator that can easily be attached to existing carburetters. The BK auto-trembler for converting non-trembler coil to trembler is a speciality and also dead beat voltmeters will be shown…The new patent two-speed gear and free engine will be **Phoenix's** leading item in the way of novelties. This gear is claimed to be the simplest form of two-speed gear yet made. It is entirely dust-proof, but every part is easily accessible. In

the many severe tests which have been given to the gear it has always kept absolutely cool: in fact, after a □ðvemiles'runon the low gear all the time the gear was cold. In the 'Phoenix' special spray carburetter it is impossible for any dust to penetrate to the interior. All the air necessary for the carburetter is drawn in through one gauzed funnel running close to the engine. The adjustment of mixture and throttle is automatic, while the spraying nozzle is made adjustable. The petrol and oil gauges (registered) are let into the side of the tank, enabling the rider to see at once the quantity of oil and petrol in the tanks. The improved combined stand, carrier and mudguard answers the usual purpose of a carrier, but when in use as a stand it carries with it the top of the mud-guard, thus leaving the tyre easy of access for repair…The **Raglan Cycle Co** are introducing a motorcycle for 1904 which, by reason of its many good points and special features, promises to rank amongst the □ðrst□ðight. It has a 2¾hp engine, a special □ðoat feed spray carburetter and belt transmission. It is worked by two levers situated on the top tube, actuating the throttle and the ignition, which is by wipe contact. An exhaust valve lifter is □ðtted and actuated through the medium of a Bowden wire terminating in a pull-up lever under the right handle. An extra tank is □ðtted into the back part of the



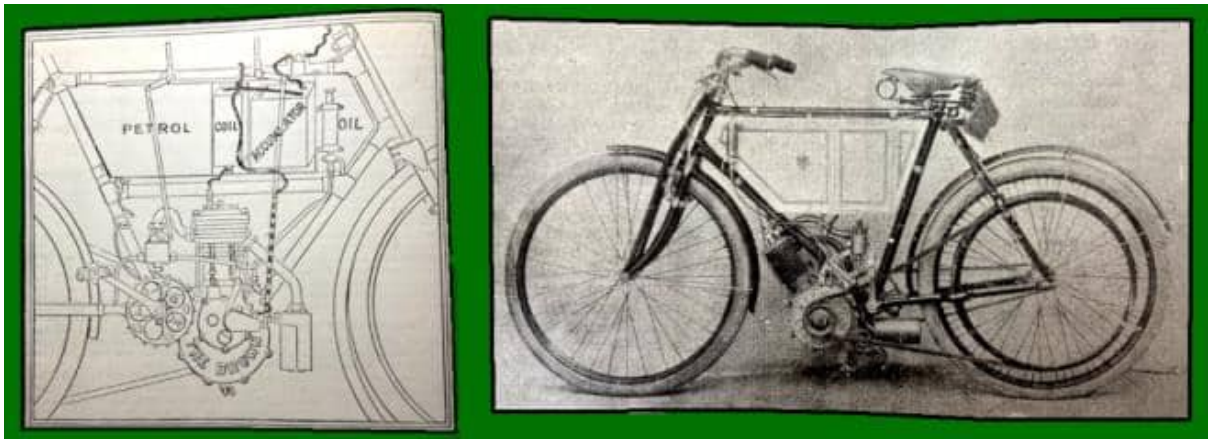
"The 1904 Rover Motor-Bicycle." (Right) "The 1904 Bradbury Motor-Bicycle."

frame which will contain a gallon of petrol…The **Bowden Patents Syndicate** will be showing a large variety of improvements especially connected with the Bowden motor-bicycle. The special feature about this machine is the Bowden chain drive and friction clutch which has proved so successful, and is still further improved for 1904. The □ðrm's handlebar control system by the Bowden wire transmission is certain to prove a highly interesting exhibit. The throttle valve, spark advance, valve lifter, front and rear wheel brakes and clutch and automatic circuit breaker are all wire controlled. A clever development of the Bowden principle is the □ðrm's new □ðexible tube for oil or petrol connections. This obviates the nuisance caused by the fracture of rigid copper pipes by vibration. The 1904 FN engine of 3hp will be □ðtted…**Chas Peacock & Co**, Clerkenwell Road, London, EC, have many novelties for 1904. A new 4½hp motor, with twin cylinders will be very suitable for driving fore-carriages. The workmanship throughout is very substantial. The crank case is provided with clamps for attachment to a loop frame. A new style of accumulator will also be shown. This has many good points; for instance, the positive plate is of a deep ribbed section, and formed by the Planté process, giving very great capacity and strength. The terminals are of a non-corrosive metal, and the vent is made perfectly acid-tight



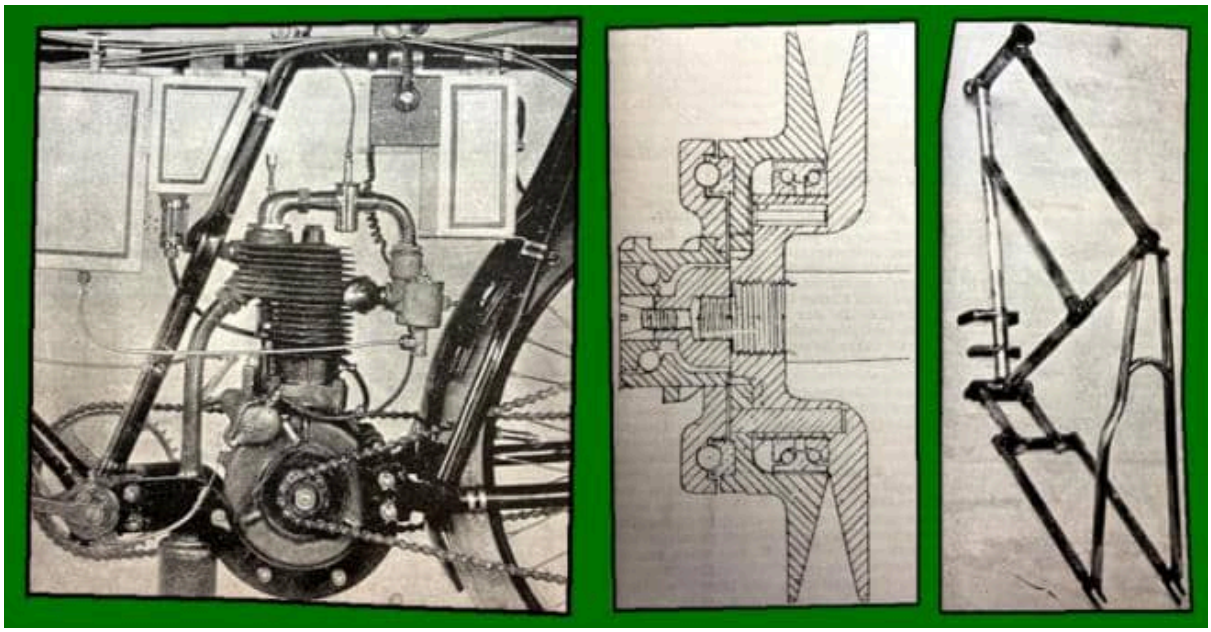
“New 4½hp Twin Cylinder Motor by Chas Peacock & Co.” (Right)“Diagram showing the lines of the 1904 Crypto Motor-Bicycle.”

by an ingenious arrangement…Theexhibitof motorcycles on the **Crypto Works Co’s** stand will consist of three specimens of two diīerent model motor-bicycles, and two specimens of the Crypto tri-car. Thenew pattern Crypto bicycle has been designed to □ðlltherequirement for a comparatively light bicycle with ample engine power. Theframe is exceptionally strong and symmetrical. Theengine □ðttedisa2½hp Peugeot. Thewhole machine weighs 100lb. Theother motor-bicycle will be of the now well-known Crypto type, □ðttedwitha3½hp MMC engine. This machine is specially suitable for racing and for trailer and fore-carriage work…Aspecial feature of the 1904 **Princeps** machine is a variable speed gear and free engine pulley for belt driving for use with a V-pattern belt; it gives a ratio of 25-30% in the gear, and allows the engine or cycle to run free. Thelever for operating the gear is placed in a convenient position on the handlebar. The pulley □ðangesaremadein two parts, the inner one being □ðxedtotheshaft and the outer one allowed to move laterally on four studs by means of a 2in-pitch triple-threaded worm operated by a ratchet lever on the handlebar. By moving the lever so that the □ðangesofthepulley come together, it gives a large diameter driving pulley and consequently a high gear, and by allowing the □ðangestoseparate,the diameter of the gripping surface of the pulley is decreased, giving a reduced gear. By separating the □ðangestotheirfull ex-tent the bolt drops on to a loose ring and allows the engine to run quite freely, or the machine can run with the engine stationary. Bythis arrangement the rider is enabled to reduce the gear according to the work the engine is required to do. This is a distinct advantage over other two-speed gears, as in this case the low gear has to be low enough to take the stiīest of hills. A good feature of this



“Part view of the 1904 Brown Motor-Bicycle.” (Right)“The 1904 Noble Motor-Bicycle.”

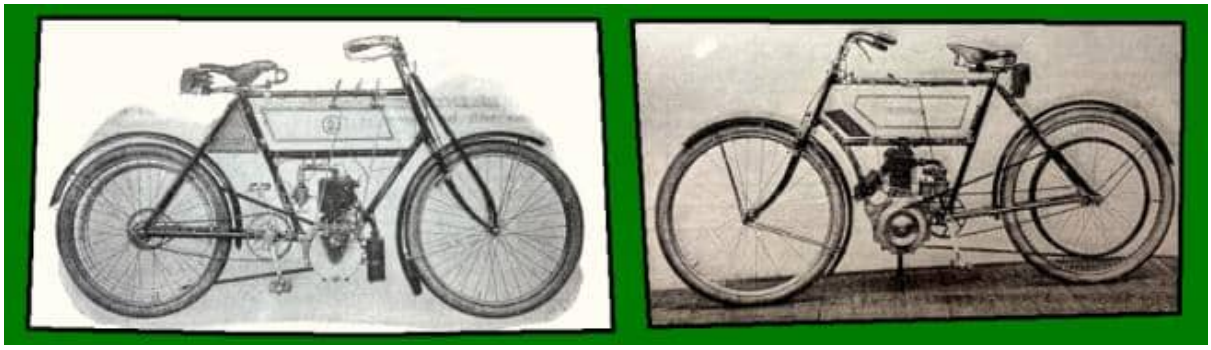
variable gear is its comparative simplicity and certainty of action…The 1904 **Brown** motor-bicycle will be made in three powers, viz, 2hp (64x70mm) [225cc], 2¾hp (74x80mm) [344cc], and 3½hp (82x90mm) [475cc]. The prices of these will be £38, £42, and £49 respectively. The motors are □ðttedwithmechanically operated valves, and the □ðy-wheelsare¾in larger in diameter than formerly. The new Longuemare carburetter is □ðtted, also an improved exhaust lifter. The machines are all □ðttedwitha combined girder and triple head. There are many improvements in the tank details, and an additional compartment is provided for a spare battery. The silencer is also made on improved lines…Perhaps the lowest priced motor-bicycle yet introduced is the £29 machine manufactured by the **Noble Motor Company**, of Pocock Street, Blackfriars, SE. The engine, of 2½hp, is of original design. Petrol capacity is 1¾gal, and room is provided in the tank for two accumulators. A L'Eclair trembler coil is □ðttedwithawipe contact. The carburetter is a D&R □ðttedwitha throttle which is regulated by a lever easily reached by the rider. The lubricating pump can also be easily operated while driving. The machine is well □ðnishedinblack enamel, or an aluminium □ðnishcanbehad for an extra 10s…The **RoverCycle Co** will show their 1904 motor bicycle. It has a 3hp motor □ðttedvertically in a special cradle. The inlet valve is mechanically operated. The ignition is by brush contact and trembler coil and two accumulators are provided, the two way switch being □ðttedontheforward part of the horizontal tube. Transmission is by V-shape belt. The frame is exceptionally well-stayed by a double down tube and a series of tubes at the crank bracket. The front forks are of the



L-R: "Part view of Bowden's 3hp Motor-Bicycle, showing new features. The Princeps Variable Speed Gear. New Eadie Motor-Bicycle frame."

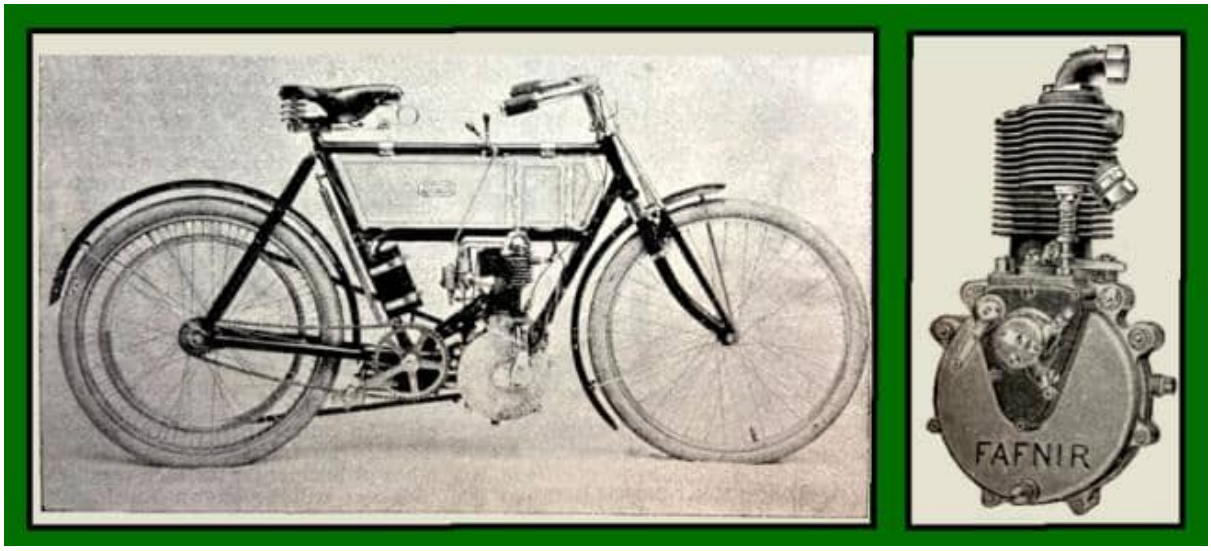
duplex pattern. The motor cylinder and head are cast in one piece, and a special paraīin valve is □ðtted. The sparkingplug is placed vertically .over the inlet valve. The case at the rear of the frame carries the accumulator and the coil…The special feature of the **Eadie** motor-bicycle is the design of the frame. The chain stays are quite straight, without any lugs, giving great strength, and enabling the wheel to be easily removed. Another advantage is that it is easy for the assembler to manipulate the □ðttings, as there are no cranked lugs to braze and ample clearance for the belt drive is also provided within the stays…**Mills & Fulford** will have a large and interesting display of side-cars, fore-cars and trailers. There will be several new designs of

fore-cars with improved steering on the lines of a motor-car. An entirely new pattern will be one intended for tradesmen's use, □ðttedwitha box or hamper for the delivery of goods. Side-cars will be shown □ðttedwiththe □ðrm'snewsteeringsystem, and others with compensating joints. The **County Chemical Company** will have a complete exhibit of lubricating oils, calcium carbide, celluloid cement, picric acid, rubber solution,



"The 1904 Triumph Motor-Bicycle." (Right) "The 1904 En□ðeldMotor-Bicycle."

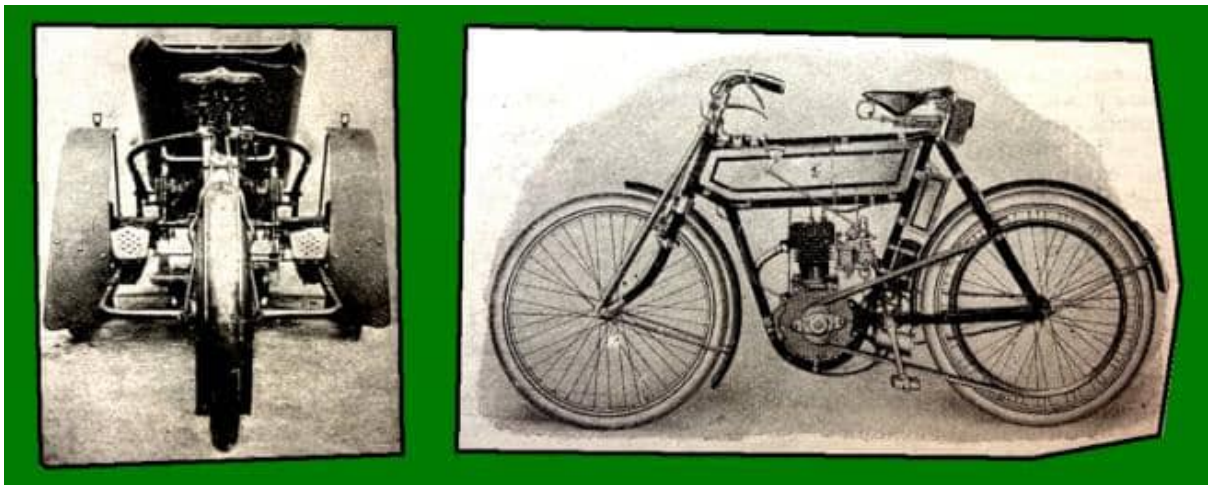
enamels, lacquers, motor grease, belt dressings, and a. new searchlight inspection lamp; and, in fact, all materials for motor purposes…The **RisingSun Motor Co** will exhibit the West□ðeld Autobike. This has a motor with cylinder 74x78mm [335cc] 2¾hp, large □ðy-wheelsandlong bearings. Theregulating gear is controlled from the handles. Thesilencer is of special design and two brakes are □ðtted,viz,aband brake in the rear hub and a rim brake on the front wheel. Thefront forks are duplex and of great strength. Two-inch Clipper motor tyres are used, and extra wide mudguards with front extension. Themakers can supply a variety of sizes of driving pulley to suit various classes of work such as fore-carriage work, ordinary road work and racing. Thesepulleys are interchangeable and detachable. A special 3½ model is also made…Messrs **Strauss & Co** of Upper Thames Street, London, EC, will be exhibiting the Fafnir motor. It is a well designed motor, made in two sizes for motorcycles, viz 2¼and 3hp, these being 70×75 and 75x80mm bore and stroke [288 and 353cc respectively]. Theexhaust valve is □ðttedwitha governor. Thecooling ribs are larger and more numerous than usual, and cylinder and head are in one piece. The ignition is by a plain make and break. The FN carburetter is □ðtted, and also an extra silencer. Theweight of the 2¼hp is 38lb, 3hp 40lb…The **Clarendon Motor Car & BicycleCo**, of Coventry, will exhibit 12 of their 3hp 'Clarendon' motor-bicycles, having decided to make this machine, a standard pattern for 1904. All machines made by this □ðrmwill be □ðttedwiththeir patent adjustable outside pulley bearing which has been improved for next season. A specially designed 3hp engine is □ðtted,thebore and stroke being 77x81mm [377cc]. A mechanical inlet valve is one of the improvements for next season, also an eīective silencer…Amotor-bicycle □ðttedwitha 5½hp air-cooled De Dion engine is especially built for fore-car work. Bicycles built from Chater Lea □ðttings,and□ðttedwith3hpFafnir engines will also be exhibited. These are retailed at 30 guineas by Messrs **May Brothers**, of Clapham Road, London…The **Triumph** motorcycles will include 2½hp and 3hp machines, and also a fore-carriage with



"The 1904 West□ðeldMotor-Bicycle."(Right) TheFafnir was rated at 2¼hp (288cc) and 3hp (353cc).

water-cooled motor. Thestandard pattern machine motor is 70x76mm[292cc] and provided with a Dunlop silencer and exhaust valve lifter. Twin accumulators with two-way switch and BasséeMichel coil are used. Transmissionis by V-belt. Wheelbase is extra long and girder forks are □ðtted,theweightcomes out at 120lb. The3hp machine designed for heavy riders and hilly countries has a motor 75x80mm [353cc] and Longuemarecarburetter. Transmissionis by a V-belt. Twoaccumulators and double switch are □ðtted.Thecontactis an improved make-and-break pattern. Themotor is □ðttedinalow central position; a rear band brake and front rim brake are provided. Thewheels are built up with extra stout spokes and □ðttedwith26×2¼inClincher tyres. Thepetrol capacity is 1½gallons. All control levers have ratchet adjustment. Thefore-carriage motor will be provided with a honeycomb radiator…Messrs**Alldays& Onions**will have an interesting exhibit of their new pattern motorcycles and fore-carriages, made throughout by Messrs Alldays & Onions, and all parts are interchangeable. Theframe is designed with a special cradle (registered)for carrying the motor in an upright position. Lugsare provided on the crank case which correspond with faces on the cradle, and are securely held by four bolts. This invention aīords greatstrength to the frame and rigidity of the motor and obviates the necessity of clamping to or bending tubes. Thetank has compartments for two accumulators, coil, lubricating oil and suīicient petrol for 160 miles. A □ðoatregisterisprovidedand always visible for showing the quantity of petrol in the tank. Theweight of the machine complete does not exceed 110lb. Themachines □ðttedwithfore-carriages are strongly built, and a specially designed frame is constructed for carrying a well-□ðnishedandsmartly upholstered bucket seat…Adistinctly novel feature of the **Quadrant**Tri-car is the use of two separatemotors of 2½hp which can be run singly or together simply by moving a foot lever. Thisfeature of employing two motors gets over the diīiculty of cooling a large single motor. Thetransmission is by means of a V-belt from each motor driving on to each side of the back wheel. Thecarburetter used is the 'Quadrant' surface type, and has a capacity for two gallons of petrol. Twin accumulators are used. Theback wheel has a Quadrant back pedal brakeand the side wheels have band brakes actuated by Bowden wires. Thedriving tyre is 2½in and side wheel tyres 2in diameter. Thefront carriage is coach built and is suspended on extension coil springs. The principal springis adjustable to diīerent weights. Footrestswith rubber mats are provided…The**En□ðeldCycleCo**havenow equipped an entirely separate factory for the

production of motorcars and motor-bicycles, and from this it will be seen that the En□ðeld Company do not look upon motor-bicycles as a 'side line'. The Royal En□ðeld



"The Quadrant Tri-Car." (Right) "The 1904 Clarendon."

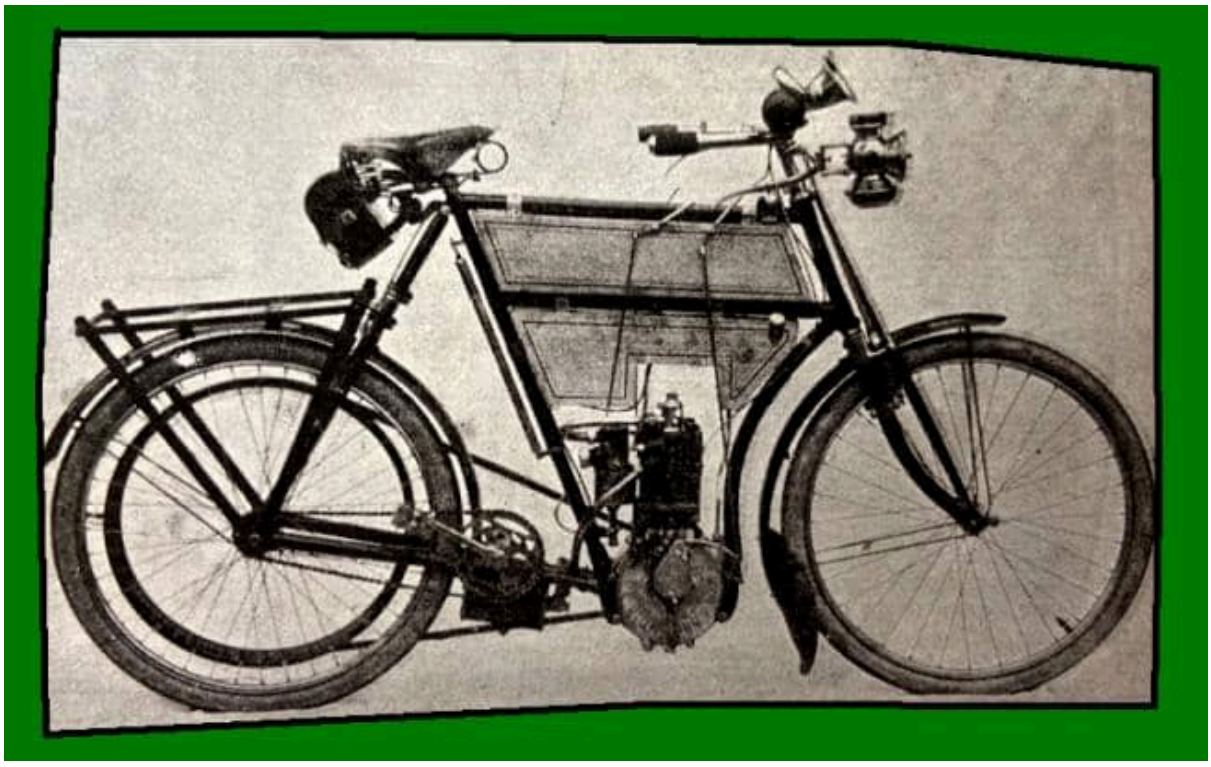
belt driven motor-bicycle is equipped either with 2¾ or 3½hp vertical engine, spray carburetter and specially large silencer. Great attention has been devoted to the strength of the frame and front forks, and the bicycle has a very handsome appearance. The Royal En□ðeld chain-driven motor-bicycle is a machine which attracted so much attention at last year's Show; the engine, which is made by the En□ðeld Company, is of the vertical type 2½hp, and one of the chief features of this bicycle is that only a single driving chain is employed…**Werner Motors** will exhibit their new models for 1904. Their exhibit is always looked forward to with special interest, as having been engaged in the trade from its very commencement, they are responsible for the introduction of many of the leading features now adopted in the generality of motorcycles. Originality has always been a remarkable feature in their productions, and this year 12 distinct improvements will be introduced, several of which are of a very important character. Two types of machines will be marketed of 2½ and 3¼hp. The engines are of an entirely new design, and are □ðtted with large □ðy-wheels and a new style of carburetter which is automatic in action and gives remarkable results. An entirely new device for providing a free engine will be a conspicuous feature of these machines, and a special arrangement of the engine pulley will render the possibility of belt slip very remote. The frame of the machine is longer than in last year's patterns, and the front forks are stayed on the girder principle. Special attention has been paid to the brakes and a new system for the one on the back wheel will be shown. The new silencer is of larger dimensions and of diīerent internal construction in order to give maximum eīiciency with the higher-powered engines…**Hobart, Bird & Co** will exhibit three motorcycles □ðtted with their standard 2¾hp engine, and one □ðtted with a larger engine, viz., 3¼hp. The makers have somewhat altered the design of the frame for the coming season to secure larger tank capacity, whereby they are enabled to enclose the petrol, the oil, the trembler coil and two accumulators of ample size. Important and original novelties have been introduced, the chief of which is an emergency handlebar control. This consists in the adaptation of an inverted lever on the left handlebar, by which three operations in succession are performed. First, the electric circuit is broken; secondly, the exhaust valve is lifted; and, thirdly, a ,powerful Bowden brake is applied to the rear wheel. This arrangement allows of either operation being executed alone, or in combination…An engine on quite original lines, designed for □ðtting to full roadster bicycles, is the Faceler; it has a chain drive through a spring mounted gear wheel. The special features of it are: arrangement of □ðy-wheels and gearing so as to give a narrow crank case. Intermittent

motion of second shaft, giving quick opening of valves without use of cams. Inlet valve opening automatically, closing mechanically. These engines

"Side-Carrier Attachment introduced by Graham Bros." (Right) "A 3hp Quadrant Motor-Bicycle used with a carrier trailer."

will be manufactured for the trade by the **Faceler Motor Syndicate**. They are of 2hp, and it is claimed that by their use an ordinary roadster bicycle can be transformed into a fully-powered motorcycle…When our humorous artist, Percy Kemp, contributed a sketch to Cycling depicting the delight of a household goods remover who, having secured a 2hp motor-bicycle, attached it to a loaded pantechnicon, he was only looking well ahead. Two illustrations on this page depict the motor-bicycle put to utilitarian uses. One shows a side attachment to be used as a tradesman's carrier which has been introduced by Messrs **Graham Bros**, Church Street, En□ðeld, N. The other shows a carrier trailer in use by Mr **Max Lindner**, of Hanbury, near Bromsgrove, who runs a poultry farm for show and utility purposes. His machine is a 3hp Quadrant; the trailer is 6ftx4ft 6in, by Mills and Fulford. The photo shows a load of empties with a crate of fowls on top. As the farm is a long distance from any railway station, Mr Lindner □ðnds his motor and trailer extremely useful…The Anglian motor-bicycle is manufactured by the recently formed **Anglian Motor Co**, of Beccles. The engine is a 2¾hp De Dion, and the latest pattern De Dion □ðoat-feed carburetter with throttle is □ðtted. Lubrication is eīected by a sight-feed pump that can be easily operated while the machine is being ridden. Transmission is by heavy Lincona belt. Two four volt accumulators are supplied, one as spare, and a Bassée & Michel coil. Control is by switch handle on the left and Bowden twist handle on the right, operating an exhaust valve lifter. The price complete is £60. Lamp, horn, combined stand and carrier, spare parts and a full kit of tools are included, and other advantages such as self-sealing air tubes are in the speci□ðcation. One of 'ours' had the privilege of trying the machine on some Surrey roads. The bicycle ran marvellously well, and with perfect steadiness over some greasy stretches, and when a dry surface was reached, gave full evidence of possessing all the power that a speed man could wish. It mounted a long tricky hill, with sharp turns and a rather loose surface, without pedal assistance, leaving behind a motor-cycle of a diīerent make rated at the same power, which failed to rise to the occasion and had to be pushed to the top. Over heavy roads it made light work of a trailer with passenger…**Griīon Motors'** exhibit comprises a range of 1903 pattern Griīon motor-bicycles □ðtted with the special Griīon 2½hp motor, combined spark and exhaust valve lever, special girder forks, copper tank, containing accumulator coil, and capacity for one gallon of petrol and one pint lubricating oil, new pattern plug, and special front and rear wheel brakes. Weighing complete only 110lb. Also the new 1904 pattern Griīon

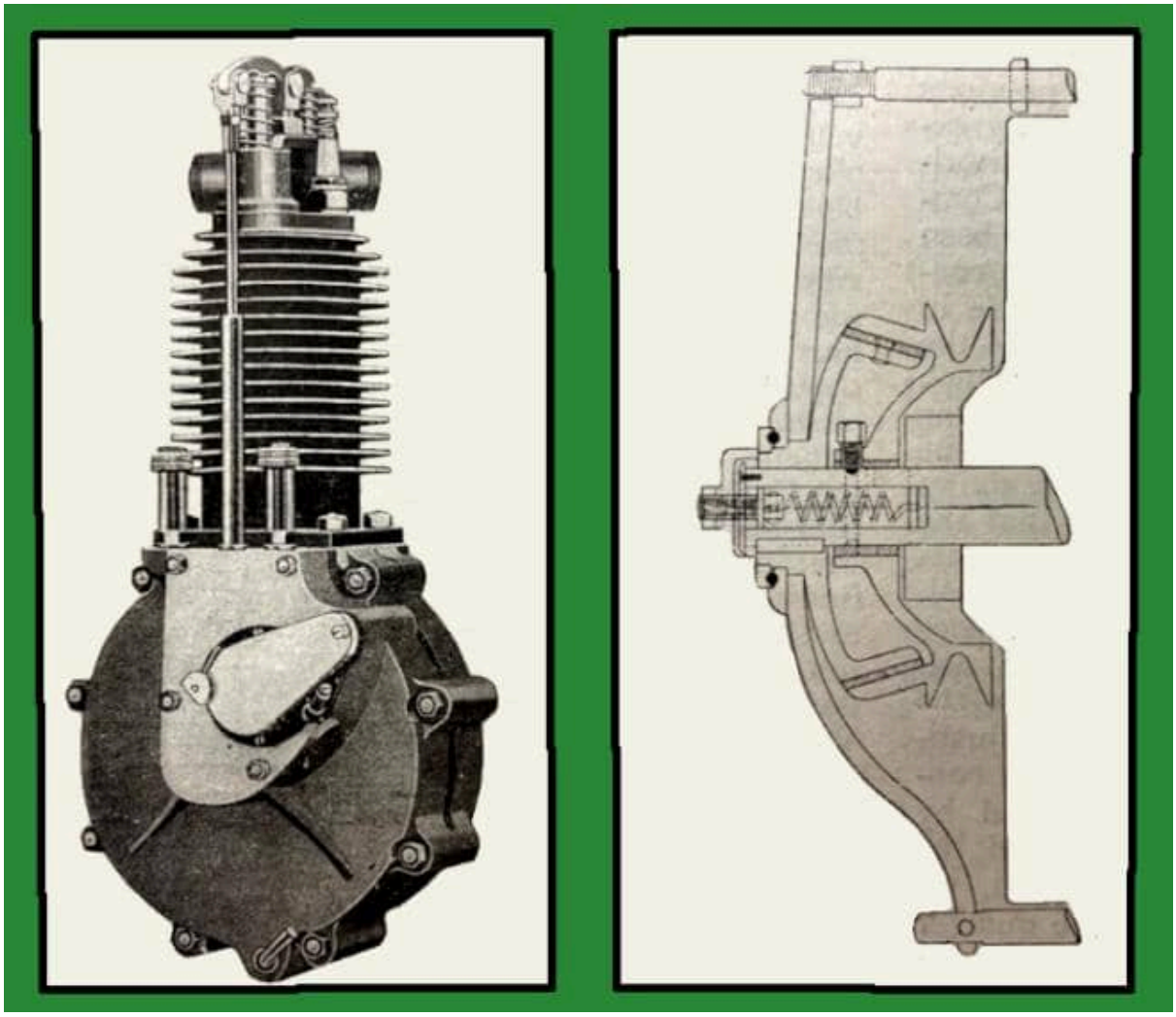
3hp motor, with new mechanical inlet valve, automatic Longuemare carburetter and spring forks. There will also be shown the identical Griffon on which Lamberjack won the Chateau-Thierry Hill Climb and the identical Griffon on which Demester won the Circuit des Ardennes…Special lines to be exhibited by the **Simms Manufacturing Co** include the 1904 pattern 2¾hp bicycle motor fitted with Simms-Bosch magneto ignition, one of which will be shown running on coal gas, and one fitted to a motor-bicycle complete. In addition will be shown the new 3½hp Simms bicycle motor fitted with the Simms-Bosch 'Arc-light' (high-tension) magneto ignition, which the makers claim as one of the greatest novelties for the coming sea-son. This system of ignition consists of a magneto machine which produces a 'jump' spark without the aid of a coil, the machine forming a complete outfit itself. Further, it is fitted with a lever by means of which the spark may be advanced or retarded. It is also applicable to any motor, as all that is necessary is to arrange a suitable rotary drive, and connect one wire from the terminal to ignition plug. One of these 3½hp motors will be shown fitted to a Chater-Lea frame with Mills and Fulford fore-carriage…A 3½hp chain-driven motorcycle will be one of the prominent features of the **Raleigh** display. All taps and levers are dispensed with, the machine being controlled from the handlebar by means of twisting handles and Bowden wire. The engine is fitted with a governor which allows the machine to be driven from a mere crawl up to 35mph. The machine may be controlled entirely by the use of the governor only, the elasticity of the engine being remarkable. The drive is by a Hans Renold motor chain from a spring clutch on the engine pulley to a countershaft, and from thence to a spring chain wheel on the driving wheel. The drive is very resilient and absorbs the vibration. The 2¼in tyres, exceptionally long wheel base and a specially sprung motor saddle help to make the machine as comfortable as is possible even on bad roads. The weight complete is 145lb. Two accumulators with two-way switch are provided. The new Raleigh-patent two-speed gear may be fitted to machine if specially ordered. No



"The 'Anglian' Motor-Bicycle."

pedals can be □ðttedhowever.A3hpbelt machine on similar lines will also he exhibited, and whilst catering for those who pin their faith to the belt drive, is also a cheaper model. Another novelty will be the 'Raleighette' three-wheeled motor tandem with fore-carriage. It is □ðttedwitha 3¼hpwater-cooled engine, with chain transmission and the two-speed gear, which enables the machine with two passengersto climb any hill without over-heatingthe engine. Thefront seat or fore-carriage is entirely suspended on springs, whilst the back seat and the tanks are so arrangedthat a lady can drive. Pedals are dispensed with as these are unnecessary, footrests being provided for the feet. Theengine is started with a handle and thrown into gear by means of a leather-faced clutch, actuated by means of a pedal worked by the left foot, whilst the right foot pedal puts on the brake. Two band brakes on the front wheel and a rear rim brake on the driving wheel are provided. A 2hp chain-driven motorcycle and a 2hp belt-driven machine, both of their selling at a very moderate price, complete the exhibit…The**ClydeMotor Car Co** are showing their standard 2¾hp model, with many improvements in detail in connection with the valve mechanism, advance sparking, etc. Theyare also introducing a new type 3¼hp (nominal) for 1904, air or water cooled; this engine has been tested to develop 3¾hp and is □ðttedwithanew arrangement for make-and-break contact provisionally patented. Magneto ignition is □ðttedon all models, but the makers have arranged to □ðttheordinaryhigh tension where customers prefer same. TheClyde fore-carriage is made with a new attachment for motor-bicycles which is de-signed to givegreat rigidity. Another new feature is an internal expanding drum brake with compensating arrangement…**ACDavison**, Camden Road, London, N, and Viaduct Works, Coventry, will exhibit 2 and 2¾hp Davison motor-bicycles featuring magneto ignition and a new system of handlebar control by which two or more levers can be conveniently operated by the thumb of one hand. A new trussed front fork made on scienti□ðclineswill be shown, with all the members straight and directly in the lines of stress. TheDavison self-lifting motor-bicycle stand and patented system of petrol and oil gaugeswill also be shown…**TheMotor Manufacturing Co's** exhibit includes the MMC 2¾hp bicycle motor with automatic inlet valve, loose head and cylinder in one casting. The1904 water-cooled MMC 4hp bicycle engine, de-signed specially for fore and side-carriage work, trailers, small boats, small cars, suitable also for many other purposes…Mr**Stephen A Marples** will exhibit a complete' machine, called TheMercury. It will have a 2½hp engine, spray carburetter, and will be exceptionally light in weight. It is oīered to the trade only at a particularly low price, less tyres. Enginesof 2½hpwill also be on show, and these like the bicycle are manufactured by a leading French □ðrm…Anon-slippingbandof excellent quality will be shown by Messrs**W&A Bates**, of Leicester. It is called the HB pattern. One of our staī has ridden a machine. with this band □ðttedtoaback tyre during the season, and has reason to speak highly of its wear-resisting powers and non-slipping eīiciency. The □ðrmis making a feature of prompt repair of motor tyres, and such work could not be placed in better hands…TheKerrymotor-bicycle will be well in evidence at the Stanley, on the stand of **The East London Rubber Company**. For 1904 three powers of engine will be available, 2¼hp, 2¾hp and 3½hp. Thesewill be absolutely upright and will be shown hung on the bottom tube, □ðttedina loop frame, and bolted into a cradle. Theworkmanship and □ðnishwillberight up to the well-known Kerry standard. Improvements have been made in connection with the timing gear, gudgeon pins and a contrivance to prevent leakage of oil from crank chamber…**TheSouth British TradingCo** will show the Vindec Rapid motorcycle, a new machine possessing a number of novel features. The FN engine and carburetter are used. Theengine is 2¾hp, 70x80mm [308cc], set vertically in a specially constructed frame built to stand vibration without weakeningthe joints. Theforks are very substantial, being continuous with the handlebar, thus making breakageat this point impossible. A novel hinged rear mudguard greatly facilitates the removal of the rear wheel. Thecylinder is designed to givegreat radiating surface, particularly

around the inlet and exhaust valve. Another special feature is the tank, which is so constructed as to contain separate compartments for the petrol, lubricating oil, accumulator and coil; each compartment being a complete structure in itself, thus making leaks or rattling impossible. Both front and rear band brakes are □ðttedonthehubs. The levers which actuate both brakes also either cut oī the electric current or lift the exhaust valve before applying the brake…Messrs **JA Prestwich's** display will include several machines made up of the various component □ðrm's parts, □ðttedwiththe JAPmotor sets, namely, 2½hp inclined motor with surface carburetter; 2½hp inclined with spray carburetter; 2½hp vertical motor with spray carburetter; and also the new 3½hp. motor. This engine has several new features. The valves are placed on top of the cylinder, and are secured by one central stud. The



"The JAPEngine." (Right) J&Bclutch."

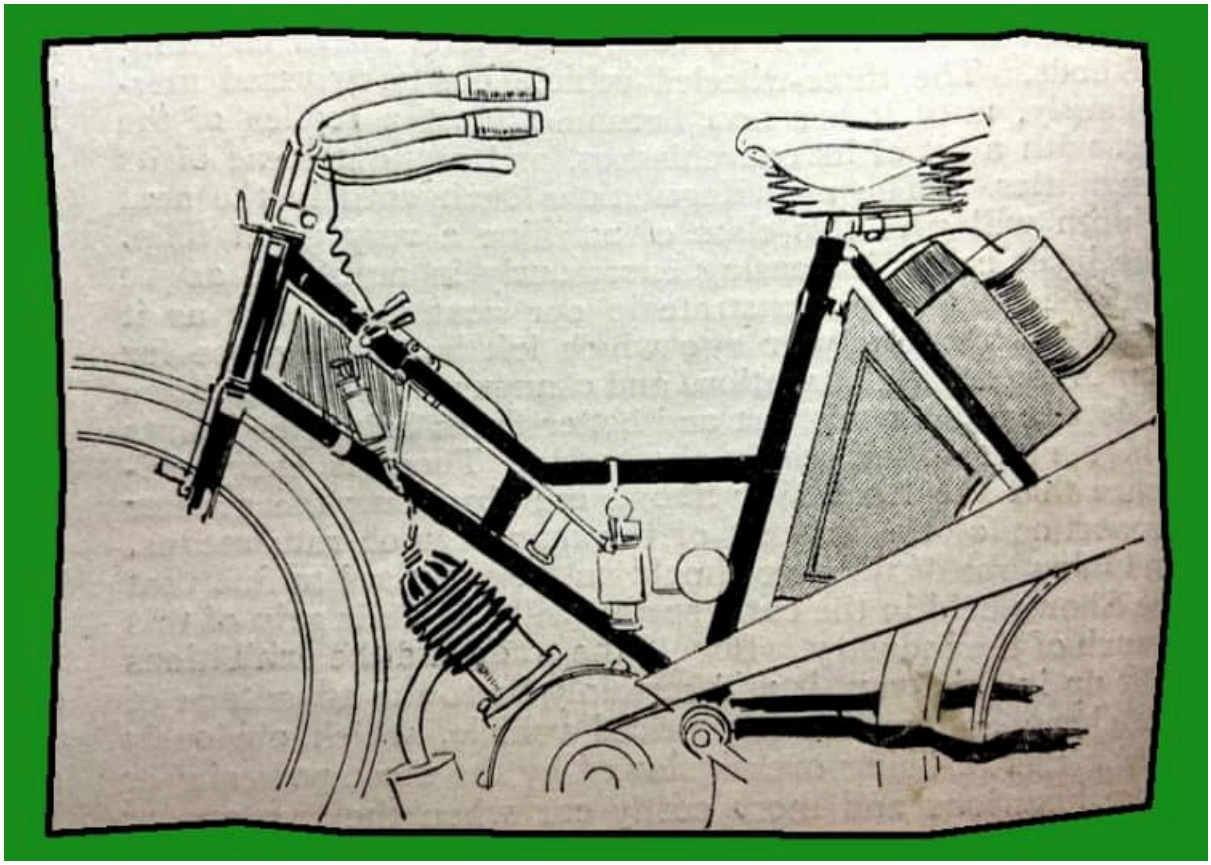
unions can be twisted in any direction to facilitate □ðxingofvarioussilencers and carburetters. The valves are worked by a single lift rod. All long ports have been avoided, and the least possible area in the combustion chamber is exposed to the □ðame, andtheexhaust cases are carried away from the cylinder on leaving the exhaust valve; thus the engine will keep cooler than with the usual arrangement of valves. The inlet valve is operated mechanically without extra mechanism…An extensive display of 'Motorities' will be made by **A Dunhill**. Theseinclude all kinds of motor clothing, and motorcyclists will be interested in the new 'hand protector' which obviates the necessity of wearing gloves. As riders well know, it is not possible to have the same control over the machine with a thickly gloved hand. Thenew protectors are of leather,

fur-lined. Motor lamps and headlights will form another interesting exhibit, particularly the new 'Duplex' headlight. This is an acetylene lamp of 2,500cp with a double lens. The Dunhill speed indicator is sure to prove an interesting item. There are two sizes registering up to 28 and 42mph…One of the chief features in the new Riley Moto Bi is that the inclined engine of old is discarded and the more popular vertical position has been adopted. This is eīected by a patented design of attachment. The system is a neat and eīective one, and owing to the rigid manner in which the engine is □ðtted, vibration is reduced to a minimum. Another special feature is that the engine □ðtted will be made expressly for the company by the **Riley Engine Company**, Coventry, embodying a narrow crank case in conjunction with bearings of great width, valves of substantial proportions, mechanically operated on a system recently patented by the Riley Engine Company. The □ðttings comprise a Longuemare carburetter, two P&R. accumulators with unspillable electrolyte and Bassée-Michel trembler coil. The Riley Moto Bi will be made in 2¼hp and 3½hp, this latter is specially designed for fore-car, etc, use. The company are exhibiting two new designs of fore-cars, also side cars, etc, completing a most comprehensive programme for the coming season…The J&B clutch is supplied by the **Central Rubber and Cycle Accessories Co**, Norton Folgate, Bishopsgate, London. The clutch consists of a metal driving pulley, recessed so as to also form the female portion of clutch. It is free on the engine shaft and is bushed with phosphor bronze. The male portion of the clutch is leather covered and is kept in contact by means of an internal spiral spring in the outer end of the shaft which is bored out to receive it. This male part is held to the shaft by a feather, but is free to slid laterally on the shaft. The clutch is operated by lever and wire from the handle-bar, and a suitable arm on the clutch is connected therewith; the clutch is drawn out by pressing a lever on the handlebar. A ball race takes the thrust when the arm is out, and the thrust on the clutch and pulley, caused by the internal spring, is overcome by means of a groove turned on the spindle in which three set screws (which are screwed through the boss of the pulley) run. This invention can be applied to any existing engine. For high-power fore-carriage motors this clutch should be specially adaptable."

"SHOW TIME WHICH IS WITH US this week, is a much more interesting period with motor-cyclists than it is to those who con□ðne their attention to the push-bicycle. The two and three-wheeled self-propelled machines have developed wonderfully during the past twelve months, and those who examined them last year and then deferred taking an active interest in them will be astonished at the strides made in so short a time. Even I was surprised the other say when I was reminded that it is not a year ago since the fore-carriage was introduced, yet the three-wheeler has passed through quite a number of stages of development since then…The newest design in two-seaters—the side-carriage—suggested by one of our artists as a joke and nothing more, has become quite a popular little vehicle, yet it appears in an exhibition for the □ðrst time this week, and, moreover, it will be shown in its improved and most up-to-date forms. Truly, we are moving quickly, demonstrating to our foreign rivals that we are neither slow in appreciating a good thing nor lacking in ability to develop it to its fullest extent. It is very evident that chain transmission, free engines and variable gears will be the features of the Shows, and thus we shall see the motorcycle more like a car than it has ever been."

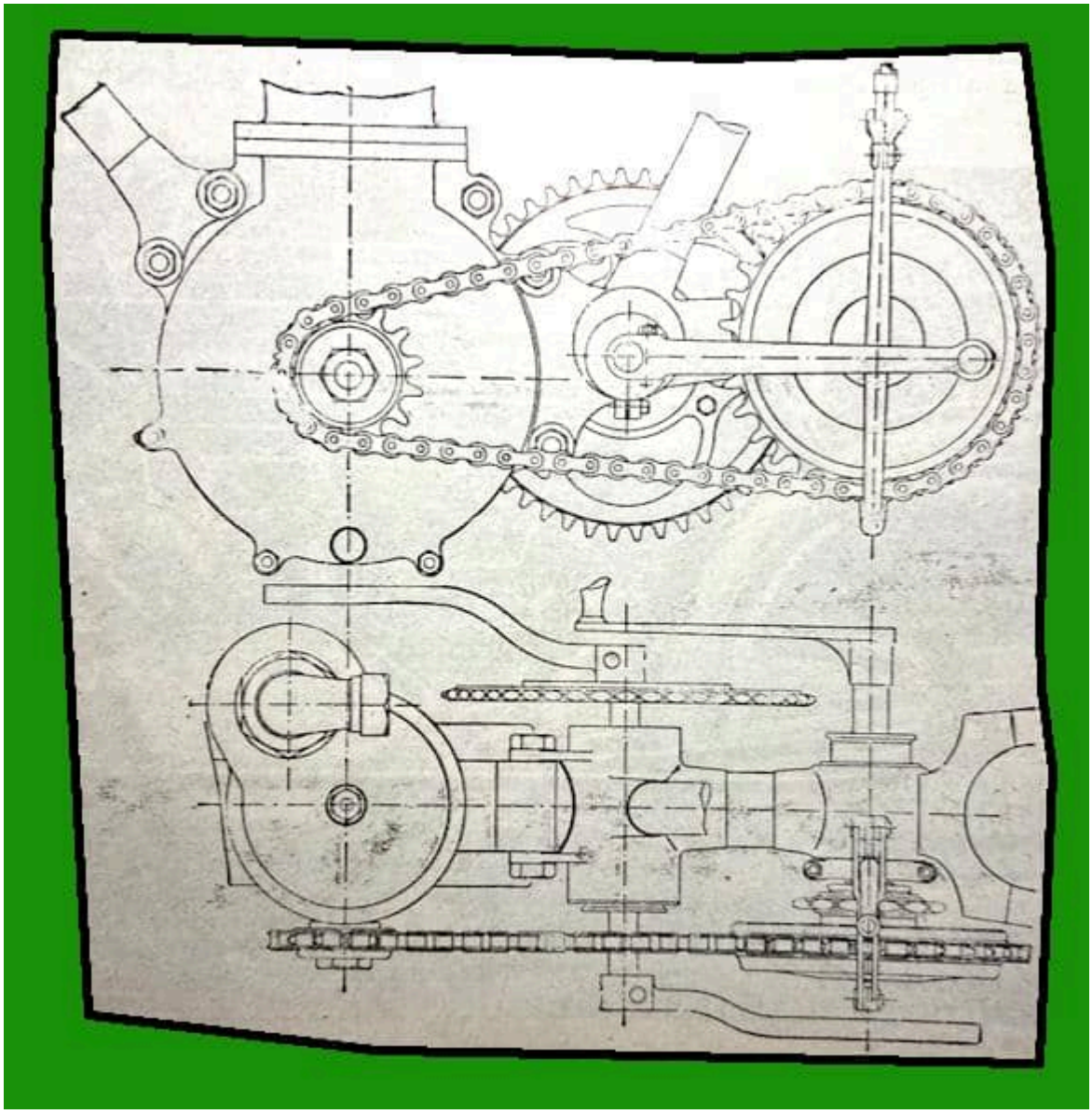
"The □ðrstStanleyShowwasheld in March 1878. It has been continuous yearly since, and the present exhibition at the Agricultural Hall is the twenty-seventh. At the □ðrstStanleyShow seventy-four machines were exhibited. At the present Show there is the largest number of exhibitors for some years. Motorcycles are more numerous than ever before, and the variety of the fore-carriages and other suitable attachments on view forms one of the leading features of the Show."

"**MINERVA MOTORS**, HOLBORN VIADUCT, EC, are making a complete display of Minerva motorcycles. For 1904 there are three sizes of engine, the 2hp, the 2¾hp and the 3½hp, and each size can be obtained for either the upright or inclined position. We must say that we have not hitherto been at all sweet on curved tubes, whilst the attempt at securing symmetry was apt to look over-done, but the machine with the engine placed vertically, when seen in actuality, presents a particularly neat and workman-like appearance—as a matter of fact the curved diagonal oīers structural advantages at the bridge piece and in the space between it and the mudguard for a tank or shaped tool-bag. All Minerva engines have mechanical valves, this improvement having been a great success. **Elswick Cycle & Motor Co**, Newcastle-on-Tyne. This □ðrm shows a twin-cylinder engine of 4hp, which they claim to be lighter than the ordinary



“Minerva lady’s motor frame.”

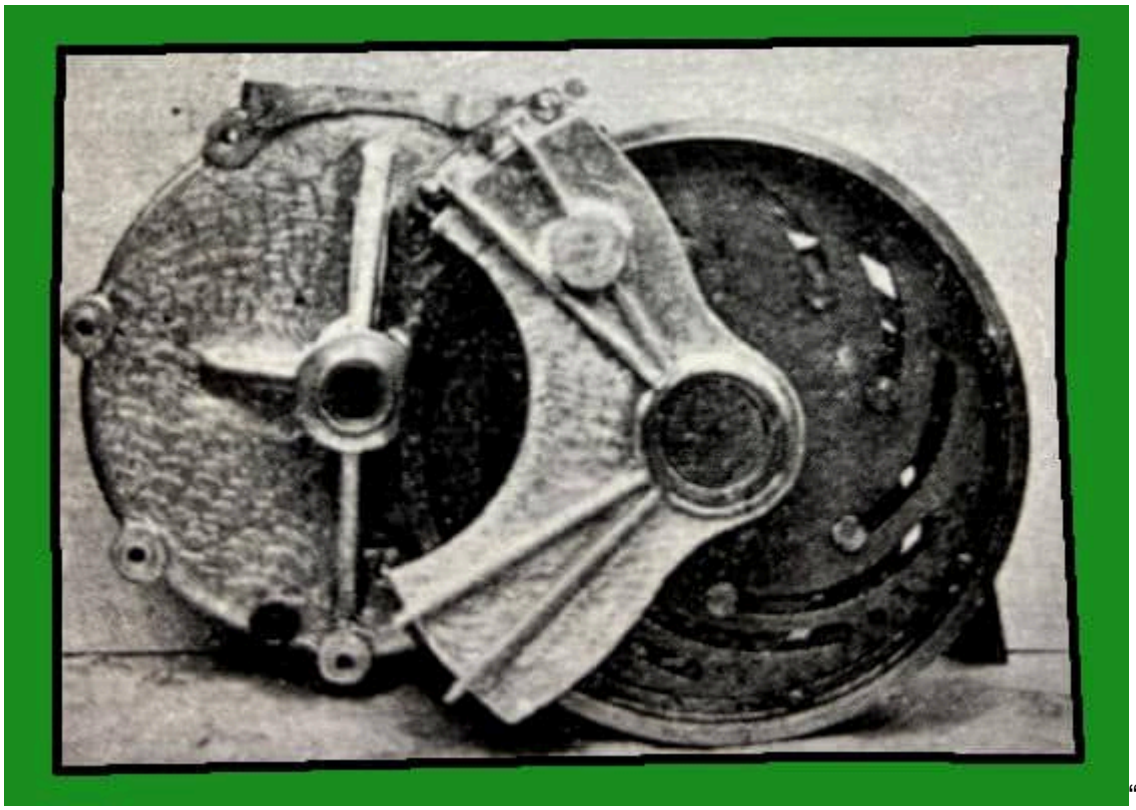
single engine: it is built into a specially constructed frame of the loop pattern. Provision is made for using either one or both of the engines at the same time. A special form of carburetter of the spray type is used. The front forks are worthy of consideration, diïering from the usual form of the duplex type in that the side; tubes are joined together over the tyre and form a single tube which is attached to the head by a strong fastening. This makes a very neat form of strengthening the front forks. The brake is of the compensating type, and double in action. **Bransom, Kent And Co**, Goswell Road, London, stage eight motorcycles, including a trailing car. The BK motor-cycle is made in three sizes, 2, 2¾ and 3½hp. These are all □ðttedwith mechanically operated valves, Minerva-Longuemare carburetter, V-belt and improved spark-plug and silencer. The frames are built throughout with the □ðrm’sown□ðttings, extra long wheel base and girder front forks. The mudguards are extra wide, with extended front, and Lynett’s La Grande motor saddle is □ðtted. The makers can supply either a- vertical or inclined position for the motor. One of the machines is shown with a handsome aluminium □ðnish, the others being part aluminium and black enamel □ðnish. The trailer is a smart-looking little vehicle, at a reasonable □ðgure. **The Jehu Motor Co**. The well-known Jehu motor-bicycle is shown in several powers, most of the specimens on view having free engines and chain drives. In the pattern with direct chain drive the clutch is on the engine pulley and is operated by a lever on the left handle grip by means of a Bowden wire. Another pat- tern has a short chain from the engine pinion to a countershaft behind the bottom bracket, the clutch being situated on the countershaft, from which another chain (giving a further reduction in speed) runs to a pinion on the road wheel. All engines are vertical, and are dove-tailed into the frame. **Werner Motors,** Regent Street, London, W. The founders of the



"The Jehu Clutch and chain-drive arrangement."

motor-bicycle industry are well up to date—the new Werner simply bristles with improvements. The powers for 1904 are 2½ and 3hp. The combustion and valve chambers are cast in one piece with an air space between, and radiating □ðanges completely encircling the valves. The carburetter is situated in the tank, an inspection door hiding it from view. A free engine is obtained by expanding the. □ðanges of the engine pulley to enable the V-belt to slip on a free running ring. The bracket spindle is divided so that both cranks can hang down together, giving a comfortable 'freeling' position. Directly the left pedal is released, a spring in the bracket brings it back to its normal position for pedalling. The inlet valve is now mechanically operated, and there is a most ingenious system of regulating the speed automatically when the free engine clutch is thrown out—an electrical device causes the spark to short circuit every other revolution instead of jumping the plug. This is eīected by a rotary contact piece which comes into action when the engine is thrown out of gear at the handle-bar. The compression tap is another clever device which allows a certain amount of air to be drawn into the cylinder at high speed and assists in giving a perfect mixture and cooler engine. The exhaust tube is now carried as nearly straight from the engine as possible to get the exhaust gases clear away. The ignition

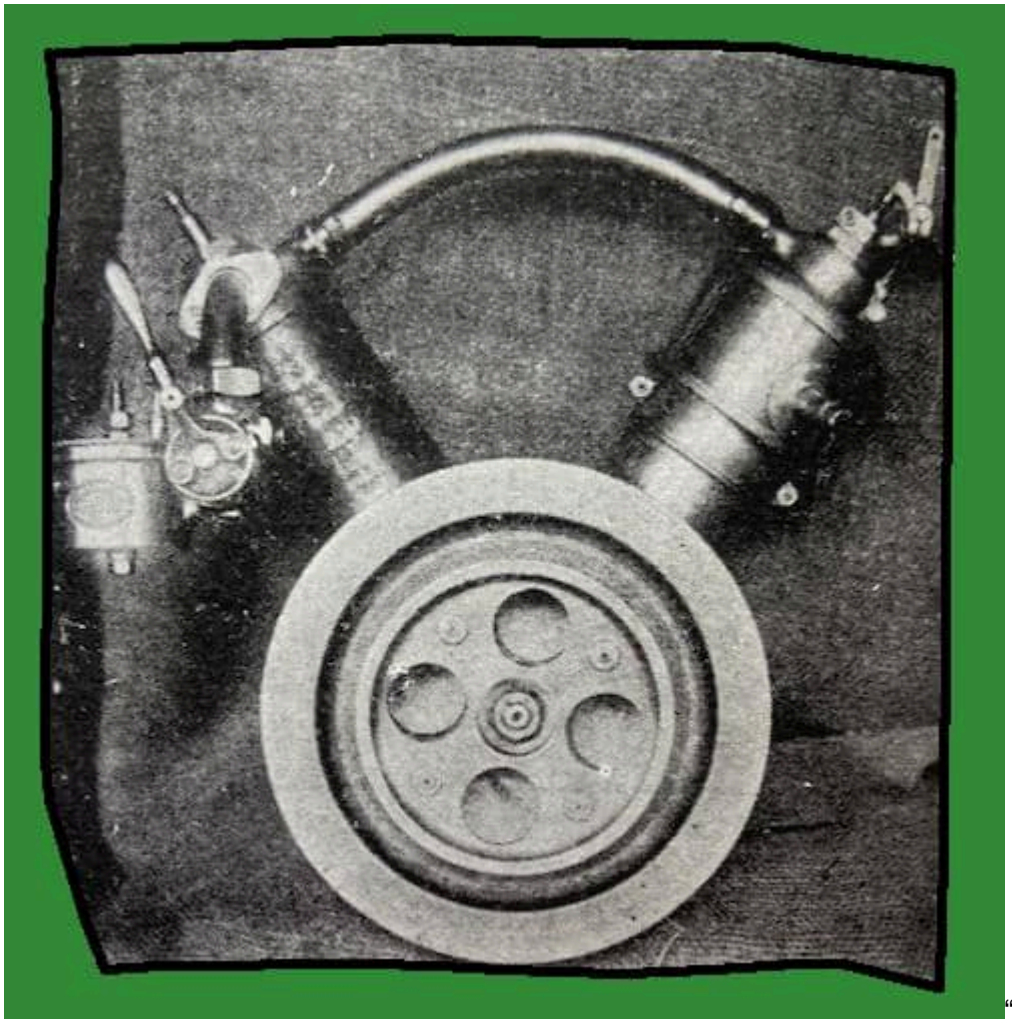
details are really excellent, especially the circuit breaker combined with the brake lever. One machine is shown with a substantial luggage carrier. **British Steam Traction Co**. A cure for all tyre punctures is shown here in the shape of Millennium, sold, in pumps, by means of which the puncture closer may be forced into the inner tube through the valve. The pump is screwed direct on to the valve stem, and is thus very convenient for rapidly inserting the preparation. A pocket electric lamp and battery at a very low price is shown. **C Lohmann,** Aldersgate Street, London is showing a varied range of accessories for the motorcyclist. The well-known Perfecta acetylene lame has been further improved this year: it is □ðttedwithareally strong and practical rigid bracket which holds the lamp on both sides. The lamp is of solid construction throughout and the carbide and water containers are of ample dimensions, the lamp burning □ðvehoursonone charge. A gas bag is □ðttedatthe back of the parabola re□ðector,thus ensuring a steady □ðame;the water valve is □ðttedwithawire, so there need be no fear of its becoming clogged as it can be instantly cleaned. A rubber tube connects the generator with the burner, the risk of a dangerous explosion being thereby minimised. This lamp marks a distinct advance in motorcycle lamps, and should not be missed by those on the look-out for a satisfactory article. A new design of swing crank, actuated from the handlebar, and □ðxedorfreeatwill, is also shown. Several useful types of leggings and leather clothing merit attention. The Superba saddle is priced extremely moderately, whilst motor horns, goggles, funnels, and, in fact, everything requisite for the motorcyclist will be found here. The **Paradox Variable Gear Co**, of Lincoln, whose change-speed gear has proved so serviceable for bicycles, have now had it redesigned to suit the motor-



"The Paradox Motor Cycle Gear."

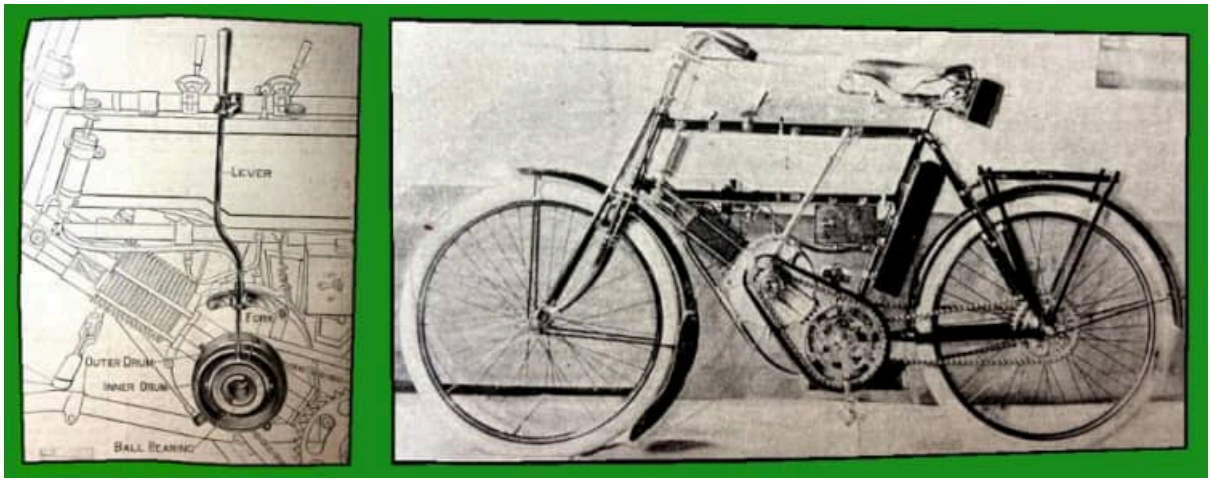
cycle. It is being made in two forms, so that it can be clamped on to the crank case of the engine, or can be screwed on to the hub. When □ðxedtotheengine case, a small pinion is fastened to the crank shaft and engages with the spur ring which is attached to one of the changing discs. The changing mechanism is duplicated for the sake of strength, and the chain ring is sandwiched in between. The changes are easily made whilst the drive is constantly

maintained—a very important factor in motorcycle driving. Seven changes of gear are provided, and a single chain communicates the power to the road wheel. In the pattern which is screwed to the hub, the power is taken by chains from the sprocket on the engine to the chain ring on the gear, a counter-shaft being used in order to get the □ðrstreduction of gear. The chain ring being contracted or enlarged increases or decreases the gear within the range provided. The change-speed for motorcycles will be placed on the market in a few months' time, and it promises to be a very great success. **Clarke, Cluley and Co**, Coventry. The Globe motorcycle is the speciality of this □ðrm, made by them throughout. A revolving □ðoat shows the height of the petrol in the tank. There is also a special feature in the contact maker—besides the usual brush contact a separate blade contact is provided, making a perfect earth, and it cannot fail to act even up to 3,000 rpm. Adjustable ratchet levers for all control gear, large Longuemare carburetter, and an easy mode of obtaining access to the valves are provided. Two-way switch, high-speed trembler coil, and Invicta accumulators make up a very neat and compact machine. **Price's Patent Candle Co**, of Battersea. This well-known □ðrm has an exhibit of various kinds of oil for cycles and motors. Prices motor lubricants are guaranteed absolutely neutral and free from any oxidising or gumming tendency. Among the specialities are Motorine for air-cooled and water-cooled cylinders, gas engine oils for water-cooled cylinders, Bilmoline for axles and bearings, and Rangraphine for motor and cycle chains. **Hobart Bird and Co**, Coventry. The general design of this motorcycle is similar to that of the past season, but the makers have added several improvements worthy of attention. An emergency handle is provided, which is of the inverted type, and its □ðrst action on being applied is to break the connection; further application lifts the exhaust valve; and □ðnally applies the back-wheel brake. The engine is of the vertical type and is made by the □ðrm, as are the carburetter, throttle for the air supply, two-way switch, Lincona belt, and two powerful brakes. On the fore-carriage either a 3½hp air-cooled or 2¾hp water-cooled engine is □ðtted. **GGoldschmidt**, Green Lanes, London, N, displays an imposing array of motor lamps, horns, goggles, oil cans and funnels. The leading line is Schmitt's acetylene lamp for motorcycles: this is complete with bracket and cleaning pin for the water valve. Its principle feature is a gas bag which feeds the burner and, it is claimed, prevents the light from failing through vibration or strong winds. **JC Hencke**, Seething Lane, EC. Four nicely □ðnished belt-driven motor-bicycles □ðtted with the well-known Bichrone engines are the chief features here. These engines, as



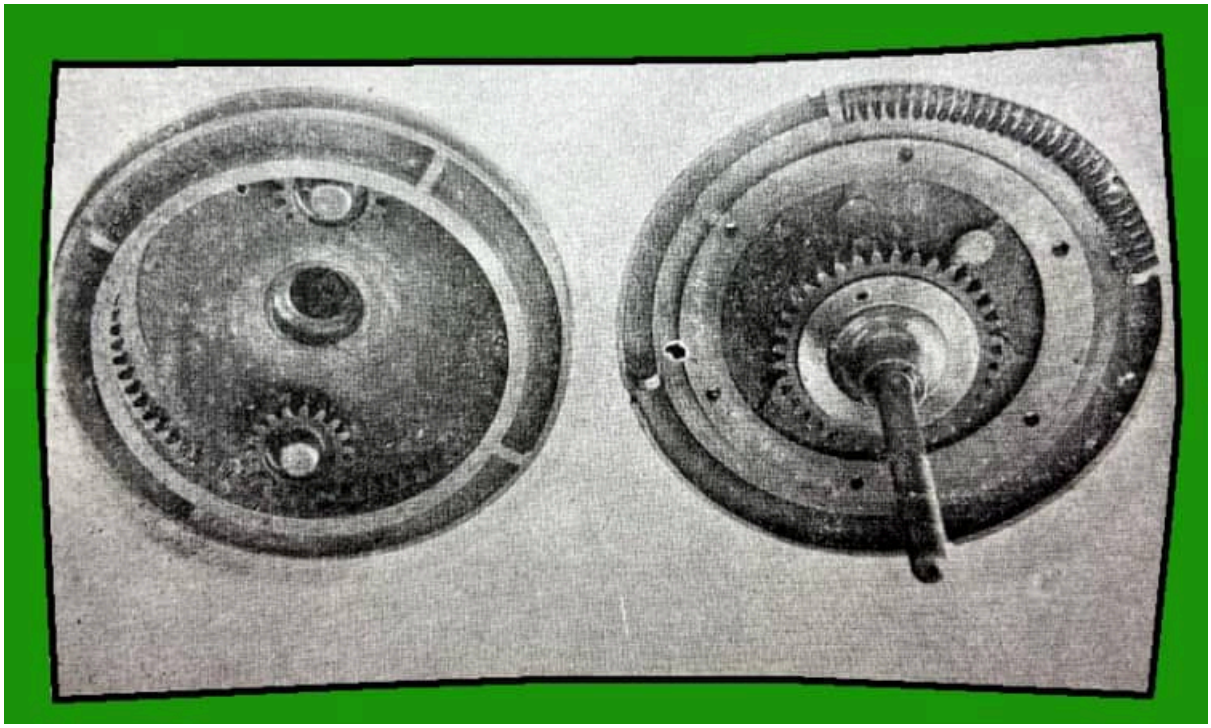
"The Bichrone Two-Stroke Motor."

we have stated on many occasions, are made on the two-cycle system, ie, the impulse of driving is imparted at every revolution instead of at each alternate revolution as in the four. cycle or Otto types. A large number of Invicta accumulators are shown; and a new form of contact breaker of the wipe type, which works a non-trembler coil: this latter is well worthy of close inspection. **Humbers**, Beeston and Coventry, devote a stand entirely to their motorcycle productions and there is always an interested crowd inspecting these excellent examples of chain driving. The new introduction in Humbers is the lightweight Beeston. It is designed on Humber lines, with the engine in the inclined position, and carried by the four tubes from the bottom of the head to the bracket bridge. The engine is 70x70mm [269cc], developing 2hp. A Longuemare carburetter, wipe contact, trembler coil, two accumulators in the case □ðxedonthe diagonal tube, chain drive through a spring friction clutch on to 26in wheels; these features of the Humber are all retained, yet the machine only tops the scale at 112lb, or a little over. This machine will sell at £50. The 2¾hp Beeston, selling at the reduced price of £55, has the free engine and clutch, with an improved clutch lever. Another improvement (there is really little or no room for improvement in the Beeston) is the □ðttingofanexhaust valve lifter worked from the



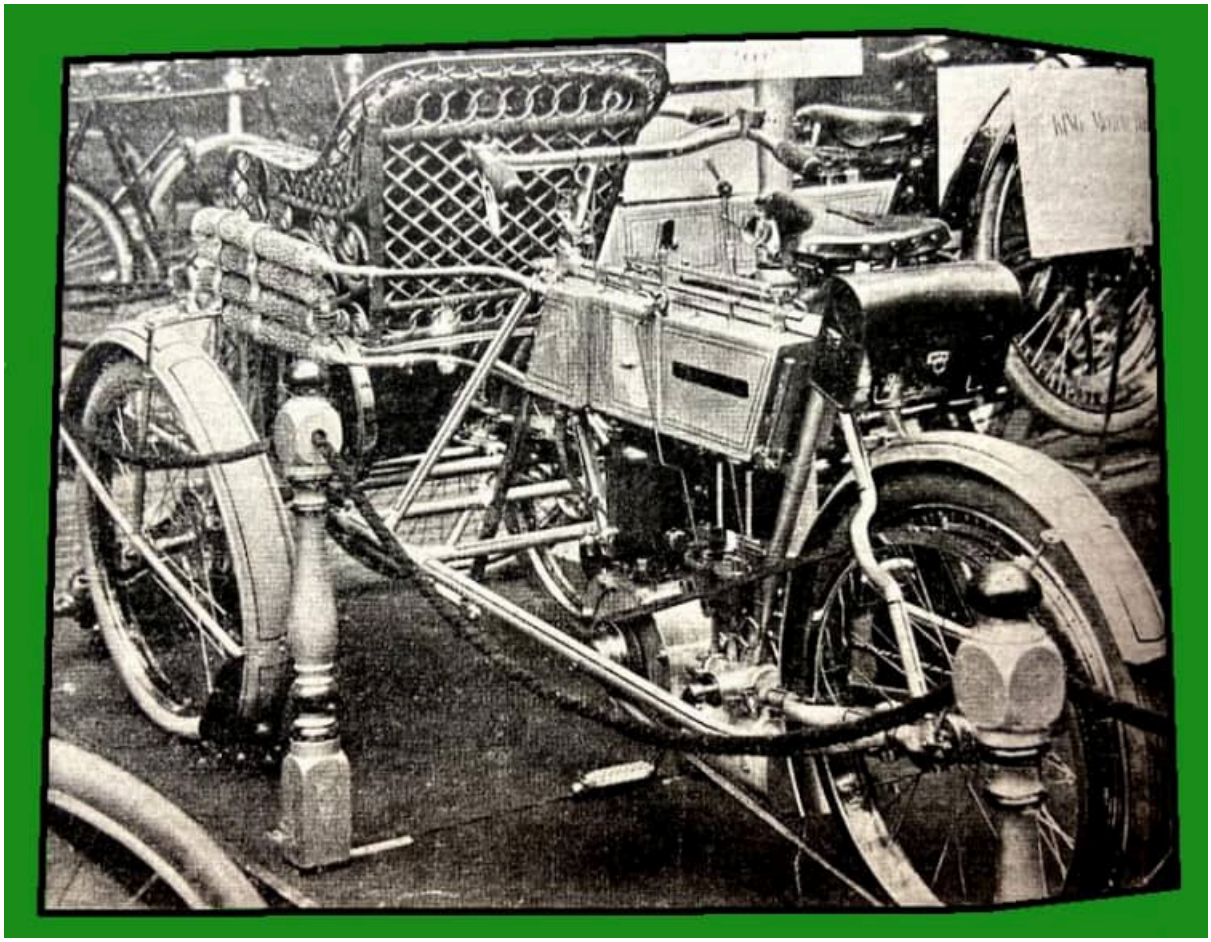
"The Coventry Humber Clutch." (Right)"The 1904 Beeston Humber."

front brake lever. The Coventry Humbers have the Humber pattern carburetter and a single accumulator case with sliding door. The lightweight has 26in wheels, weighs about 112lb and sells at £42, whilst the 2¾hp sells at £45, the free engine and clutch adding three guineas to this price. The Coventry Humber Olympia tandem has a water-cooled engine, with the tank on the head just behind the body and radiators projecting from the ends of the tank. A fore-car built for the GPO exhibited on the stand presents a very □ðneappearance. The exhibit is one if the most interesting in the Show. **JA Phillips & Co**, Birmingham, are making a speciality of a motorcycle brake adjustable to suit large diameter tyred wheels, and a pedal of extra strength. These lines are of excellent □ðnish and come out at a moderate □ðgure. **JH Martin**, Southampton, show inner tubes, wearing treads, and outer covers. This □ðrm also supplies V-section raw hide belting, motor- mats, solid tyres, and other rubber goods for motorcycles and cars. Their Dreadnought motor clothing is vulcanised after it is □ðnished, thus making it strong and very waterproof. **JA Prestwich and Co**, Tottenham, N. The JAP engines for motorcycles have gained such popularity, and have been so frequently described in our columns that we content ourselves with referring to the 3½hp type, which has only just been introduced. This engine is distinct from the 2½hp inasmuch as the inlet and exhaust valves are now □ðtted to the top of the cylinder: the plug is also given a similar position. The □ðrm claim that this method keeps the engine cooler, as the exhaust gases have a direct exit. The valves are mechanically operated and can be adjusted to suit all makes of exhaust boxes. The engine in no way competes with the other design, but is especially manufactured for fore-carriage and trailer work. **WR McTaggart**, Wells Street, Oxford Street, London, W. The FN motor-bicycle is almost, too well known to need a description at our hands. The engine—now 2¾hp—is in the same position as last year, vertical in front of the bracket, clipped to the down tube, which is divided to surround the cylinder. An additional and adjustable stay runs from a point on the down tube to the crank case—which, by the by, is an iron casting. A wide □ðat belt takes the drive to a wooden belt rim; or a V belt is □ðtted, if required, in which case a metal belt rim is used. A novelty is a sight gauge, showing the amount of oil actually in the crank case. **Bowden Patents Syndicate**, Baldwin's Gardens, Gray's Inn Road, London, WC, have an extensive display of all possible



“The Bowden Two-Speed Hub taken apart.”

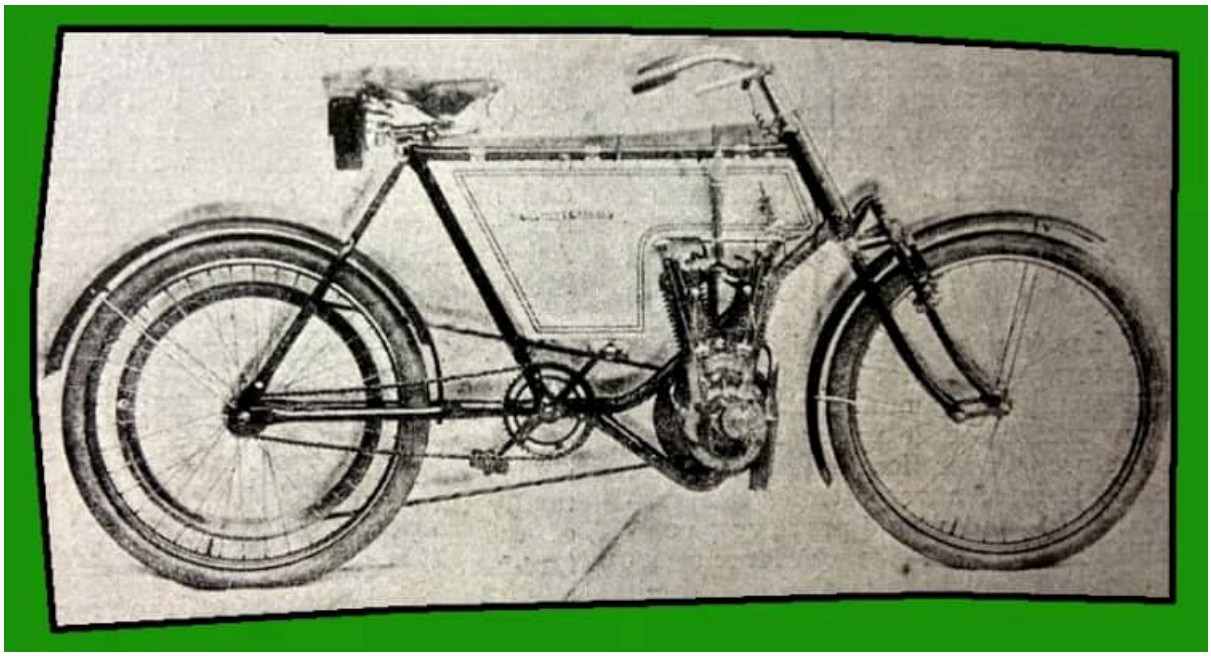
applications of the Bowden wire transmission. The brake gear, of course, is a great feature; but in addition are shown carburetter regulators and controllers, change speed controllers, band brake mechanism, ship signalling gear, Bowden patent □ðexibleoiltube, etc. There are □ðve Bowden motor-bicycles shown, having the new 2¾ to 3hp FN motor □ðtted, and also a chain drive and special friction clutch, which has proved eminently successful during the past season. Entire control from the handlebar is by wire transmission. A very neat and well thought out electric ignition arrangement is □ðtted, in conjunction with a circuit breaker on the back brake. Two fore-carriages are also shown. The most interesting feature about these machines is the pedal starting gear, which is very ingenious, and dispenses with the starting handle. Patent compensating brakes are □ðttedtothefront wheel. One of the fore-carriages has a pedal-actuated system of band brakes which is most eīective. This particular machine has a novel hand starting device consisting of a piece of gearingon to the back chain wheel which drops automatically out of gear when the starting handle is removed. **W Kingand Co**, Cambridge. The original King motor-bicycle, which secured the gold medal at the Crystal. Palace in



"Water-cooled Fore-car, exhibited by King & Co, of Cambridge."

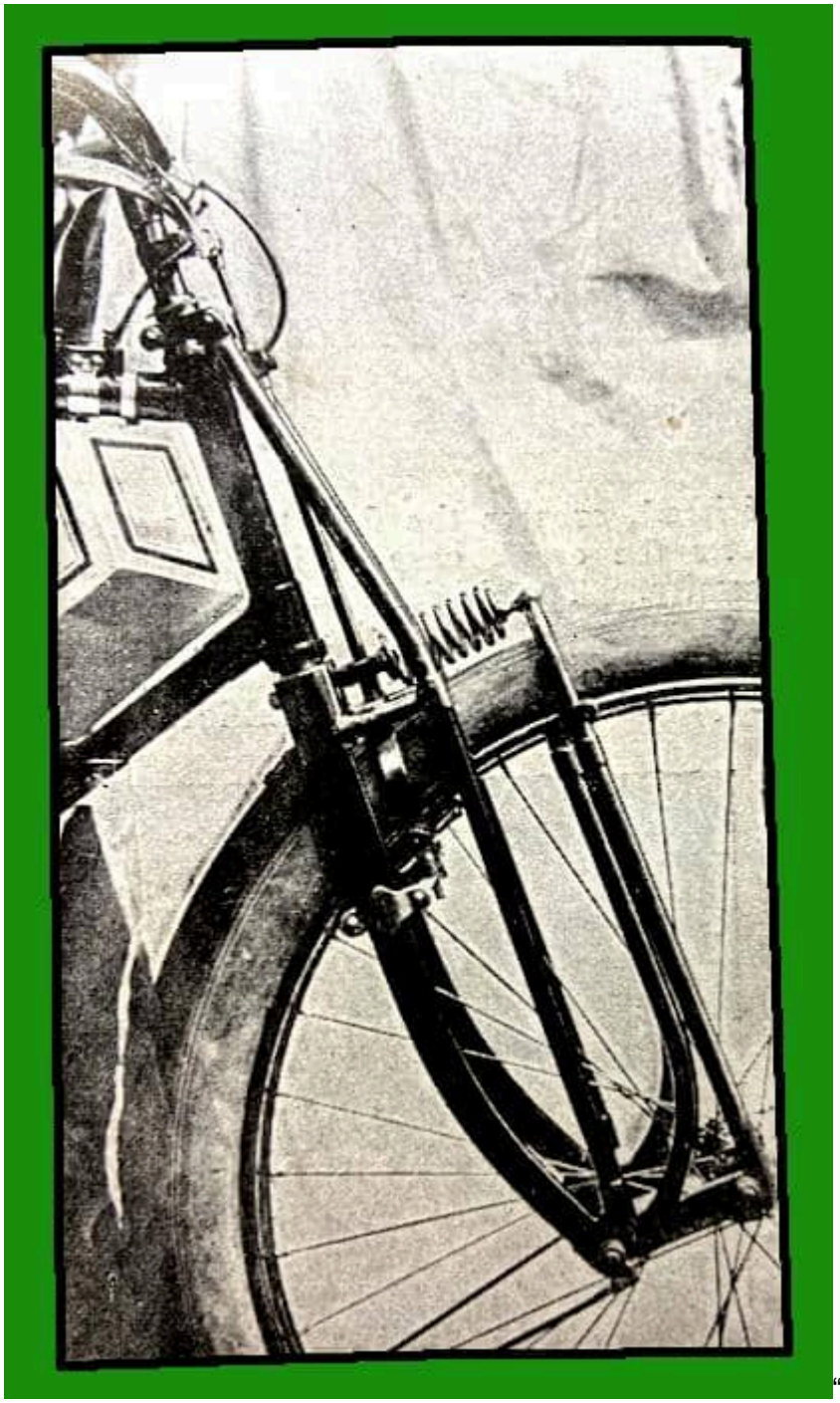
February last, is on view here. Bicycles with various engines are shown, from 2¾hp, air-cooled, to 4hp water-cooled, the latter having 10ft of small gilled radiating tubes in front of the head. Longuemare carburetters are used on all models, also duplicate accumulators with two-way switch. One machine is □ðttedwithfoot-rests built out from the crank case of the engine and a spring seat pillar. All levers have ratchets, to prevent their position being altered by vibration. The King silencer is of ample dimensions, and is oval in section, so that it can be slung between the pedals, under the bottom bracket. **Bluemel Bros**, Globe Road, London, E, are showing their motor-bicycle saddle, which follows the usual lines; also a large motor pump, made of celluloid, and □ðttedwitha gauge. This pump is □ðttedwithan aluminium foot, and is unusually light for its size. The □ðrmmakesaspeciality of celluloid □ðttings, suchas mudguards, gear-cases, etc. A high-class accumulator, of the best quality, is sure to be examined. **Alfred Dunhill**. The articles here exhibited cover every requirement for the motorcyclist's or motorist's use The new Bobby Finder is a combined goggle and small □ðeldglasswhich may be attached and detached with. rapidity, enabling a motorist to see clearly objects at a distance. The new hand protectors, which will □ðtanyhandlebars, are a great comfort in cold weather. A combined gaiter and legging is very smart in appearance and is easily put on to the leg. Some cheap stout drencher proof cloth jackets lined with camel □ðeecelining, anda very chic eider skin cap which is light, water-proof and warm are worthy of inspection. A new back lamp, burning paraīin oil, is now ready for 1904: it has a red back light end throws its main light on to the registration number. **The Stern Sonneborn Oil Co**, Gracechurch Street, London. Every variety of oil and grease appears on this stand, from the heaviest kinds required for heavy work to the thinnest for □ðnelyadjusted mechanism. The company have oils for internal uses with □ðashpointsashigh as 800°, proving

the perfection which has been arrived at by them. **The Garrard Manufacturing Co**, Ryland Street, Birmingham, stage four machines, all bristling with interesting



"The Clement-Garrard."

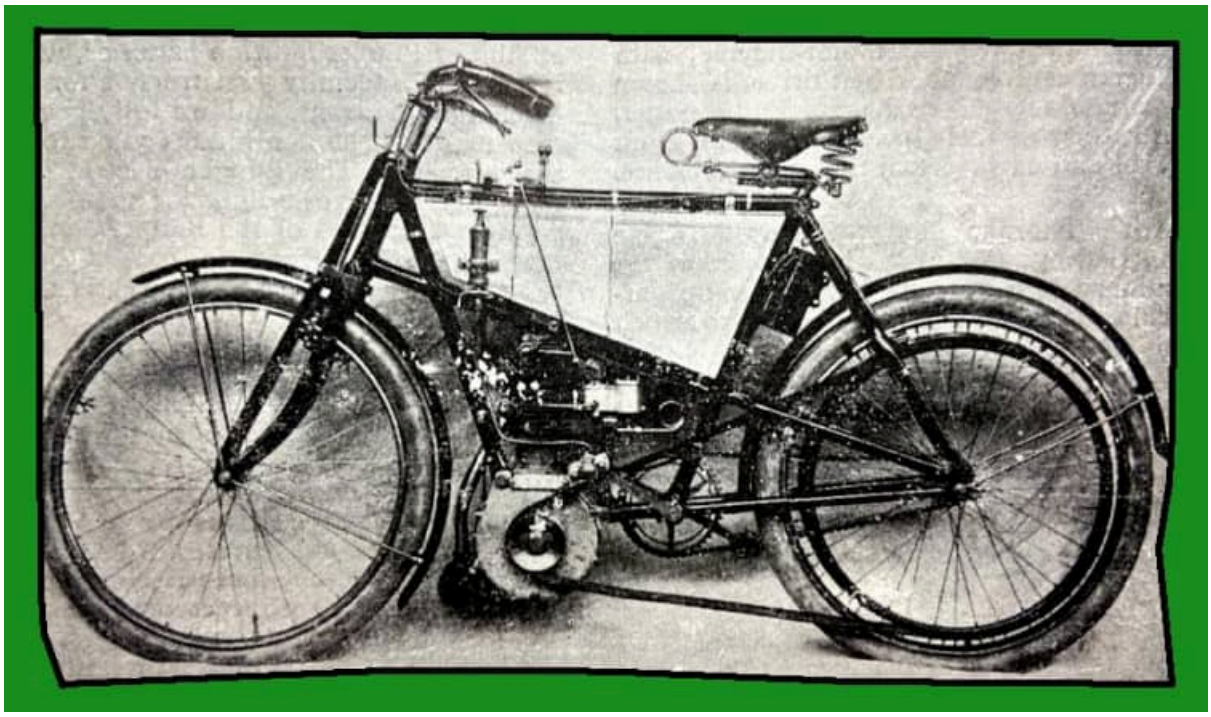
details. The Paris-Rome model machine is a remarkable line, sold at 29 guineas: it has the famous little featherweight engine, mounted vertical, and driving by a long belt. The surface carburetter □öttedhasaverylarge capacity, and lubrication is by pump: the wheels are 26in, with 2in tyres. The Paris-Rome model chain driver has a two-speed gear, long wheel base, spray carburetter, front rim brake, and back-pedal brake: this machine is priced at £40. The twin-cylinder machine is 3hp, with vertical motor in a most rigidly constructed frame, surface or spray carburetter, long belt drive, very large diameter driving pulley, the new spring forks, large petrol capacity and 26x2in wheels: price £57. The Phoenix Park model has a 2hp motor □öxedon the down tube, combined chain and belt drive, spring forks, and aluminium control levers: these are □öttedtoall machines; the price is £44. The □önishonall these machines is of a very high class. The very special feature of the CG machines is their recently patented handlebar control, with indicator mounted in the centre of the handlebar: this system consists of a of □öexibleshaft □öxedinthehandlebar, and gearing on to the indicator, thence by another shaft down the steering column to the spark advance; the positions 'slow', 'half', and 'full speed', are marked on the indicator. The spring fork is now made lighter, and the general equipment is in every way of a superior order. The mudguards are extended, and a new nickel □önishhasbeenintroduced for the wheels. The practical rider will □öndthisexhibitmost interesting. **AR Macbeth and Co**, Holloway Road, London, N. One specimen of the Macbeth motor-bicycle, with Minerva engine and V-belt drive, is shown by Mr Macbeth. It has an Eadie frame, with long wheel base, duplicate front forks and an extra petrol tank in the rear panel. **Thomas Motor Celeripede Cycle Co**, Barnet. The motor here □öttedistheordinary Minerva which calls for no particular description, but the point to which



"The Thomas Spring Fork."

this □ðrmespeciallydrawattention is their patent spring fork. A secondary fork of triangular form is pivoted to the fork ends proper, one on each side, which are joined together in an arch-□ðtting clear of the tyre; these side forks are made adjust-able for any size of wheel. Between this arch and the crown of the front forks a powerful spring is placed in compression, so that the vibration of the front forks is absorbed by the action of the spring. **The East London Rubber Co**, Great Eastern Street, London, show their special line in the Kerry motor-bicycle, which has earned a great reputation for reliability. The motor of 2¾hp is mounted vertically, drives by a V-belt and has all the good features of last year's mount. In addition, there is here a most comprehensive line of accessories, including accumulators, coils, carburetters, new lamps, radiator parts, lubricators, pumps, sparking plugs, and interchangeable parts for standard engines. The Kerry set of motor-bicycle parts is a strong line. Ammeters and voltmeters, possessing new features,

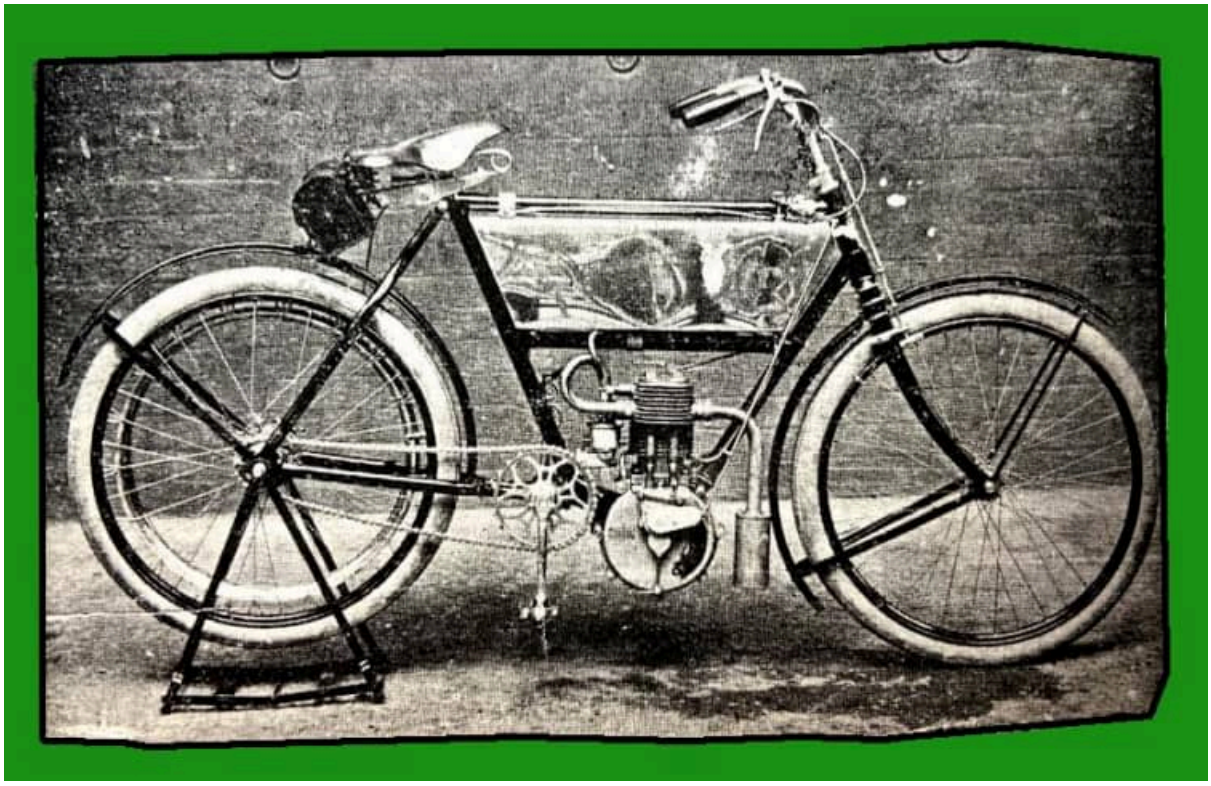
and, in fact; practically all accessories the motorist requires, are to be found here. The compact and simple lines of the motor-bicycle should be noted. There are minor improvements in the engine, especially about the 2 to 1 gear, that are worthy of close attention. **NSU Cycle and Motor Co**. This is a □ðneexhibit, and includes motor-cycles, a motor-tricycle with front seat for a lady, a motor carrier tricycle, various powered motors, and parts for motorcycles and cars, all made by this □ðrm. All the motorcycles are belt driven, have vertical NSU engines built into the frame, and powerful front brakes acting on a drum on the front wheel. A 3½hp, with a longer frame than the smaller hp machines, and long handles coming well back, looks a speedy mount. The motor-tricycle, with wicker front seat, is convertible into a bicycle, and has a pleasing appearance. **The Crypto Works Co**, Clerkenwell Road, EC. This old □ðrmhavethree motor-bicycles and two tricycles on



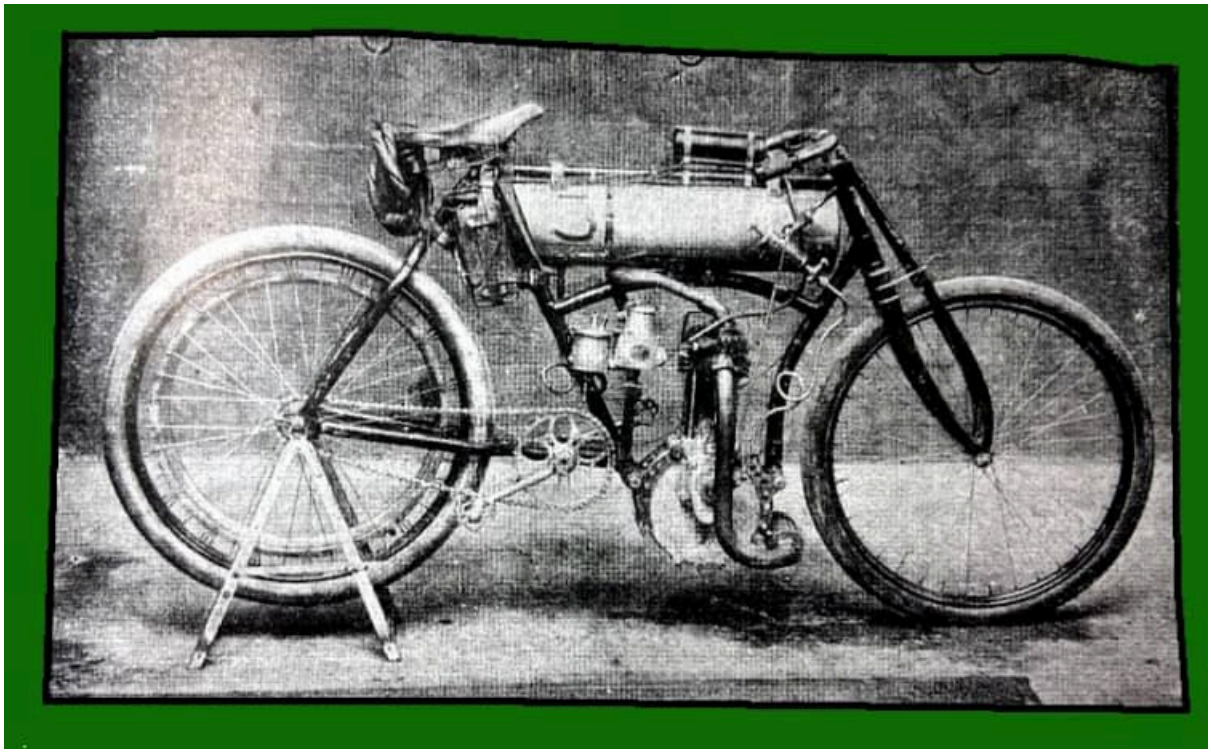
"The 1904 Crypto."

view, with engines of various makes and powers, but all bolted vertically into the cycle frames. A feature of the Crypto tricycle (built to take a fore-carriage) is the □ðttingofexpanding—metal-to-metal—brakes on the front hubs. A new frame, of registered design, has a through tube from the bottom of the head to the back wheel axle, leaving clearance beneath for the engine. Another tube runs from the top of the head, crosses the □ðrsttube, and supports the crank case at its forward extremity. The higher powered Cryptos have wide □ðatbelts, the 2hp machine having a V-drive. Mr James is to be congratulated on his □ðneexhibit. **The High Level Brand Co**, Newcastle-on-Tyne. This □ðrmmakesaspeciality in cycle and motor oils of all description, tyre cements, rubber, solutions, black enamels, repair out□ðtsforcycles, motorcycles and motorcars, lamp wicks, brazing □ðuids, tyrelevers, and all rubber goods, patches of ail descriptions, motor grease, and a new liquid cement called Phasticko, capable of sticking anything. **Leatheries**, Birmingham. Various forms of leather goods are shown on this stand, and amongst the novelties is a new motor saddle with girder frame, manufactured under licence from Messrs. Brooks. It is of a very strong and substantial make, and should prove very comfortable for the motor ride. A large selection of motor tool bags is also exhibited. A special motor mud □ðapforfront mudguards is a very useful □ðtting: itis made of two-ply leather and is secured by two screws to

the mudguard. **H Miller and Co**, Birmingham, show lamps of all sizes for motors. The new motor Cetolite is remarkable for its light weight, this being slightly over one pound. The back is □ðxed, and is adjustable to any bracket. The addition of a gas bag contained in the back ensures a steady □ðame. The drip of water from the reservoir is regulated by a disc, while an extremely ingenious disposition of the handle ensures safety from explosions. The handle is hollow, and is connected to the generator. In the event of more gas being given oī than the gas bag and generator combined can retain, the over□ðow□ðnds its way through an ori□ðce in the handle, and the pressure is thus relieved. The burner can easily be unscrewed for the purpose of clearing it with an in□ðator, should it become clogged. The front glass is detachable, and the lamp presents a neat appearance. A lamp burning colza oil, and adapted for motorcycles, is also shown. This has a spring back, an extra handle, a lens front, and detachable aluminium cone and re□ðector. The □ðrm also show a new side lamp burning petroleum. Illustrations of some of this □ðrm's specialities are crowded out. **The Referee Cycle Co**, High Holborn, London, WC. On this stand is an Ariel motor-bicycle, with Ariel vertical engine, V-belt drive, and other popular features. The cycle work on the Ariel is specially well carried out and □ðnished, the outside support to the head—which was a feature on the famous Ariel pedalling quads and quints—being □ðtted. **C Lohmann**, Aldersgate Street, EC, shows a motor-bicycle with a patent adjustable swing crank. The specimen produced betrays much careful thought in its construction, and should be closely inspected by visitors. The workmanship leaves nothing to be desired. **Griī on Motors**, Upper St



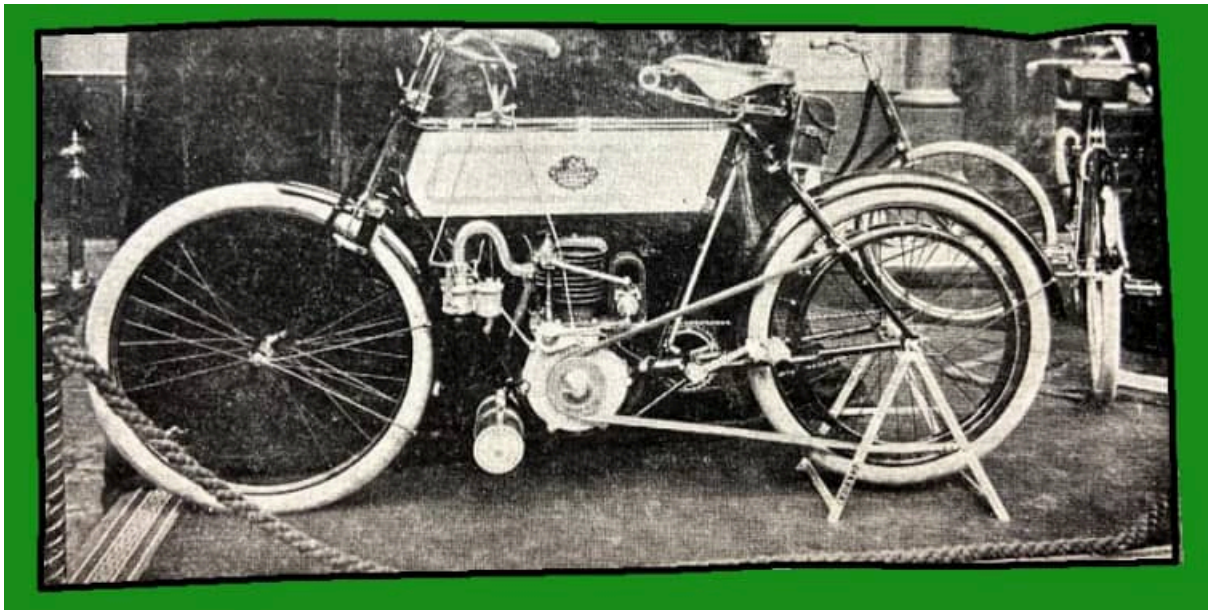
"The Griīon Motor-Bicycle."



"The Griīon Motor-bicycle on which the Ardennes race was won. This machine machine was shown at the Stanley, and attracted much attention."

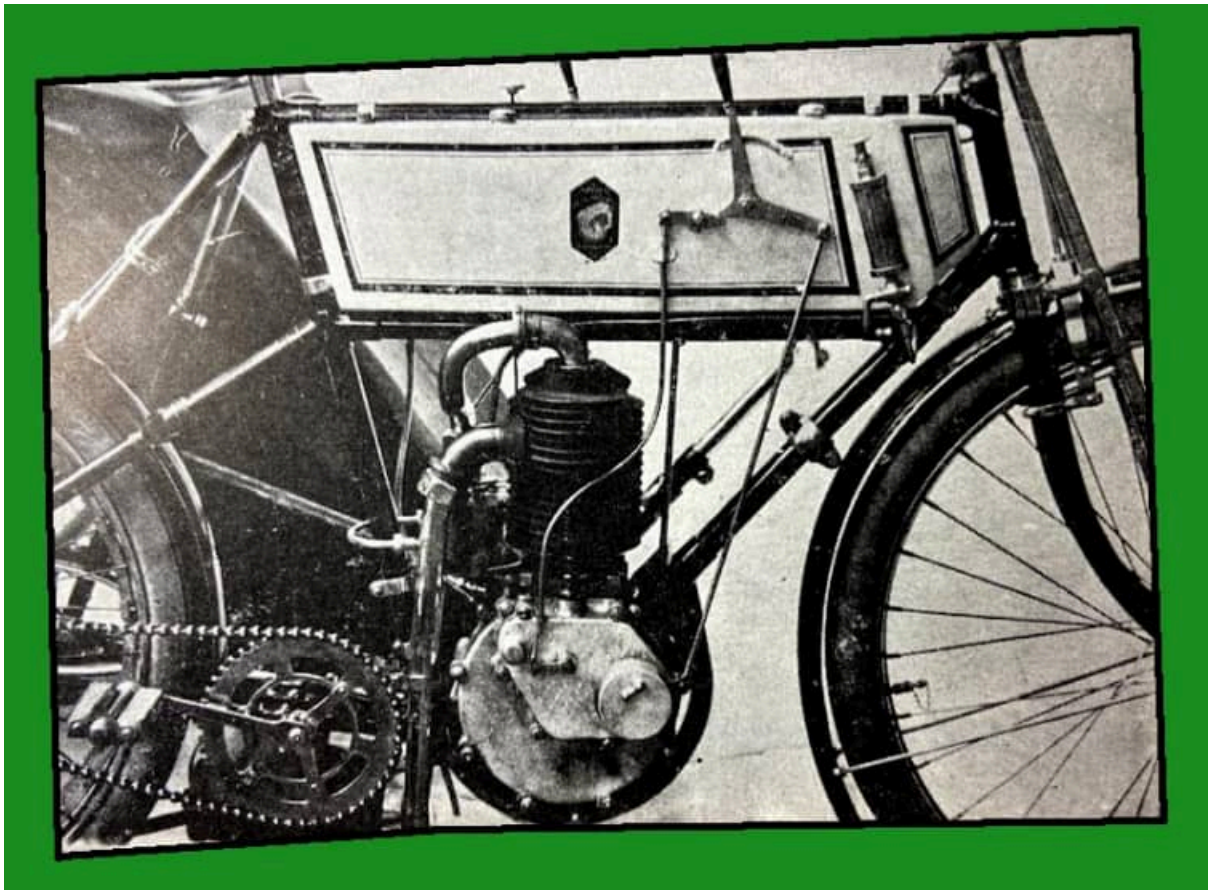
Martin's Lane, WC. The latest Griīon motor-bicycle is one of the lightest machines in the Show—the whole structure, when ready for the road, only weighing 110lb. It is □ðttedwitha2¾hp vertical motor which has mechanically operated valves. A new exhaust box has been designed which, it is claimed, gives the least possible back pressure with the minimum of noise. A Fulmar 20 ampere accumulator is adopted, as is the Nilmelior coil. There is an eccentric chain adjustment in the bottom bracket giving rigidity to the rear wheel, and the forks are of the girder type. Clipper tyres may be □ðttedifdesired. The actual machine on which Demester won the Circuit d'Ardennes is an interesting exhibit. **Messrs Kynoch**, Birmingham, show for the □ðrsttime a motor-bicycle of excellent design and □ðnish. Theengineisof 3hp, mounted in an oblique position and □ðxedbetweenthebracket and the head socket. The transmission is by chain on to a countershaft and thence to a rear chain wheel. The Longuemare carburetter is used and ignition is on the usual high-tension system. The silencer of extra large dimensions, and a noteworthy feature is the substantial design of the control levers. A neat idea is provided for releasing the inlet valve at starting. Two band brakes are used, one on each hub. The electrical gear is contained within a wood case of ample proportions. The frame is of very graceful design, and front forks of duplex pattern are □ðtted. Thefrontmudguard is provided with a sensible mudguard □ðap. Everypartis made on the interchangeable system, and the whole machine is worthy of the most careful inspection. This □ðrmhasagreatreputation for the accuracy of its light engineering work, a reputation which this machine will certainly enhance. **Robert W Coan**, Myddelton Street, EC, shows specimens of aluminium castings of every description for motorcycles of all kinds. Mr. Coan shows model cycle crank cases, forming a coin box. **Graham Bros**, of En□ðeldTown, have an exhibit of motorcycles; one—the Parade—is □ðttedwith a De Dion 2¾hp engine, belt-driven, weighing 1121b; another—the Ariel—has a Minerva engine of 3½hp. A 'novelty is the 2¾hp De Dion motor-bicycle □ðttedwithapatent Liberty detachable sociable: with this attachment a motor-bicycle is made into a very light form of two-seated car. It is claimed that this machine is absolutely free from side-slip. Fixed to an ordinary bicycle and adapted as a

carrier it makes a very useful tradesman's carrier. **Rex Patents**, The Exchange, Clapham High Street, SW. It would require many pages to set forth all the various useful patents of this company, goods well-known for their handy adaptation to various parts of cycles, motors, etc, be it pump, clip or saddle. All wants are studied by this □ðrm, the demand for a thing has but to be expressed and the Rex people have it on the market the next day. This season they give us amongst other things, the Midget motorcar for children, a miniature car which, luckily for our children, is driver by pedal-power and not by petrol, but it partakes of the form and shape of its well-grown prototype. They also show a 3½hp motor engine of London make. **Clyde C&M Car Co**, Leicester. This is one or the few □ðrms which □ðts the magneto ignition on the Simms Bosch low-



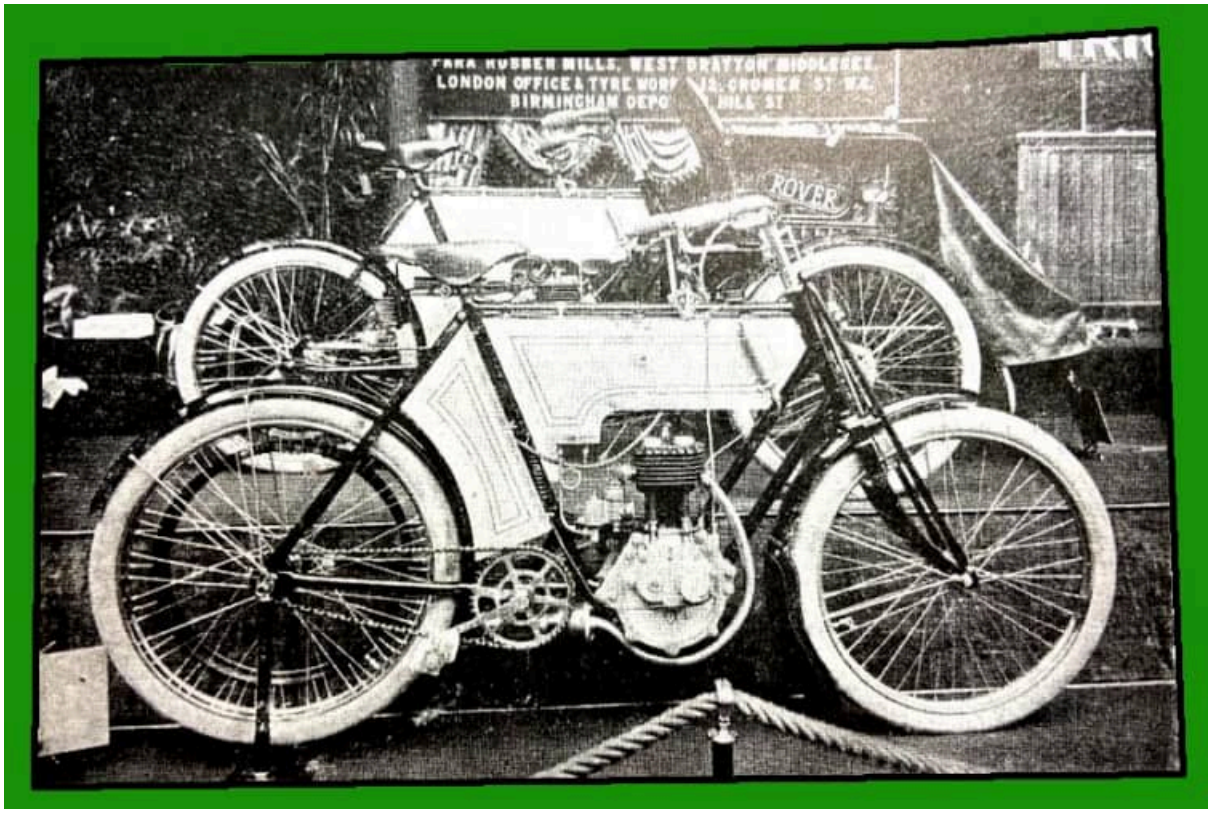
"The Clyde Motor-Bicycle."

tension system. The engine is □ðtted in a loop frame of a registered pattern, and vertical in position. A new arrangement is adopted for the advance sparking, whereby the lift of the trip rod is constant, whether the spark be advanced or retarded. Special facility has been given to enable the valves to be re-ground, a point often forgotten by even good makers. The three levers for controlling the motions are all mounted on one shaft; a spring washer keeps them all rigid in position, although free to work. This □ðrm can, if desired, □ðt the ordinary high-tension system with accumulators. **R Talbot**, Berlin and Paris. This □ðrm is the agent for the Zedel motor for the British Colonies and Germany. A Zedel motorcycle, 2½hp, is on view, □ðtted with a Zedel carburetter. Errtee sparking plugs, coils, accumulators, brakes and batteries are also shown. This □ðrm can supply a complete motorcycle, □ðtted with Zedel motor for export to the Colonies at a low □ðgure. **Lintine & Co**, Gt Eastern Street, London, make a great feature of motor accessories, of which an immense variety are shown. There are some very special lines in coils and accumulators, and a neat enclosed spark gap calls for notice. Another good thing is a handle-bar switch of neat construction. Further specialities include lamps, tool bags, horns, oilers, tyres, jacks, saddles, motorists' clothing, etc. The □ðrm also stage a motor-bicycle with 2¾hp vertical motor □ðtted in a loop frame and possessing all the characteristic features of an up-to-date machine. **The Imperial C&M Co**, Birmingham. This □ðrm make a especially constructed frame which they claim to be



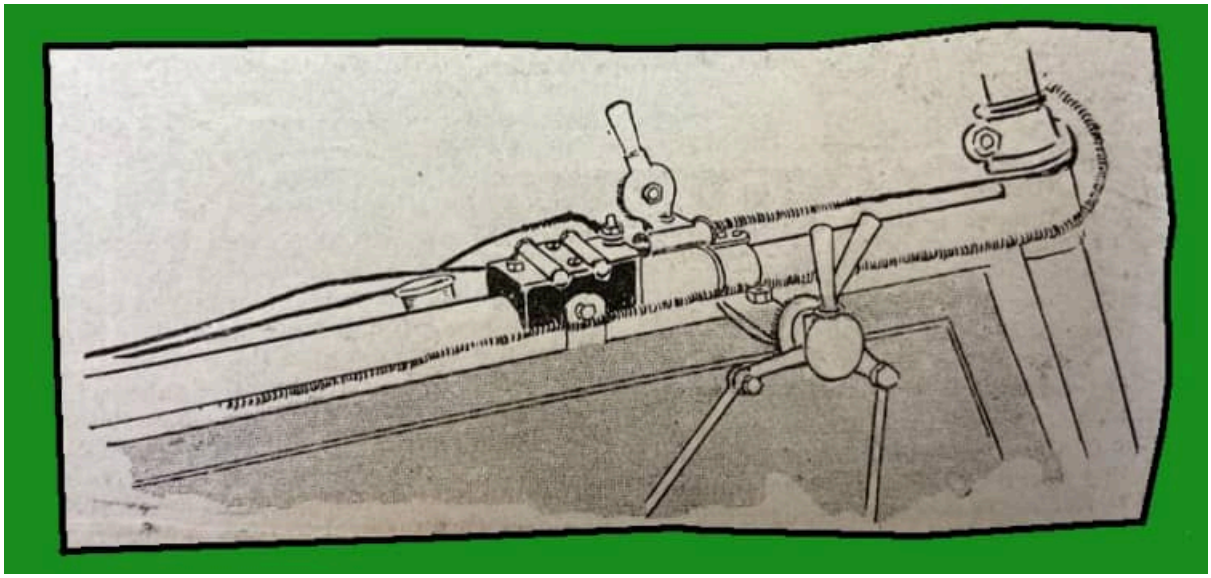
“Imperial Motor-bicycle showing lever controlling the spark advance and exhaust valve lifter.”

mechanically correct in form, having, a cradle made in a loop form of T section steel, this loop carrying the case of the motor. The T-section starts from the down diagonal, and ends near the crank axle of the bottom bracket, and it aīords a very steady bed for the motor. A second top tube is provided between the front post and the saddle pillar, and an extra back stay is □ðtted from its junction to the back forks. No doubt this frame must be extremely rigid. A point is made of the fact that the advance sparking lever, when brought fully back, raises the exhaust valve, thus dispensing with one lever. The engine is of English make, well designed, and [the frame is] □ðttedwithstrong duplex front forks. A one-way switch is □ðttedtothe handlebar and operated by thumb pressure; [other equipment includes a] B&M trembler coil, P&R accumulators, Lycett belt and Longuemare carburetter of the latest pattern. **RoverCycle Co**, Coventry. Rover motorcycles create an excellent impression, which is increased and enhanced as the delicate and beautiful work introduced into the machines is observed. The standard Rover is □ðttedwitha 3hp engine, placed vertically in a complete cradle which forms the connection between the twin lower members of the frame and the diagonal tube. The engine is provided with mechanically operated valves. Twin accumulators and a Waterson coil are employed. The capacity of the tank is a gallon and a half: the oil reservoir is placed in the forward end of the tank with an outside



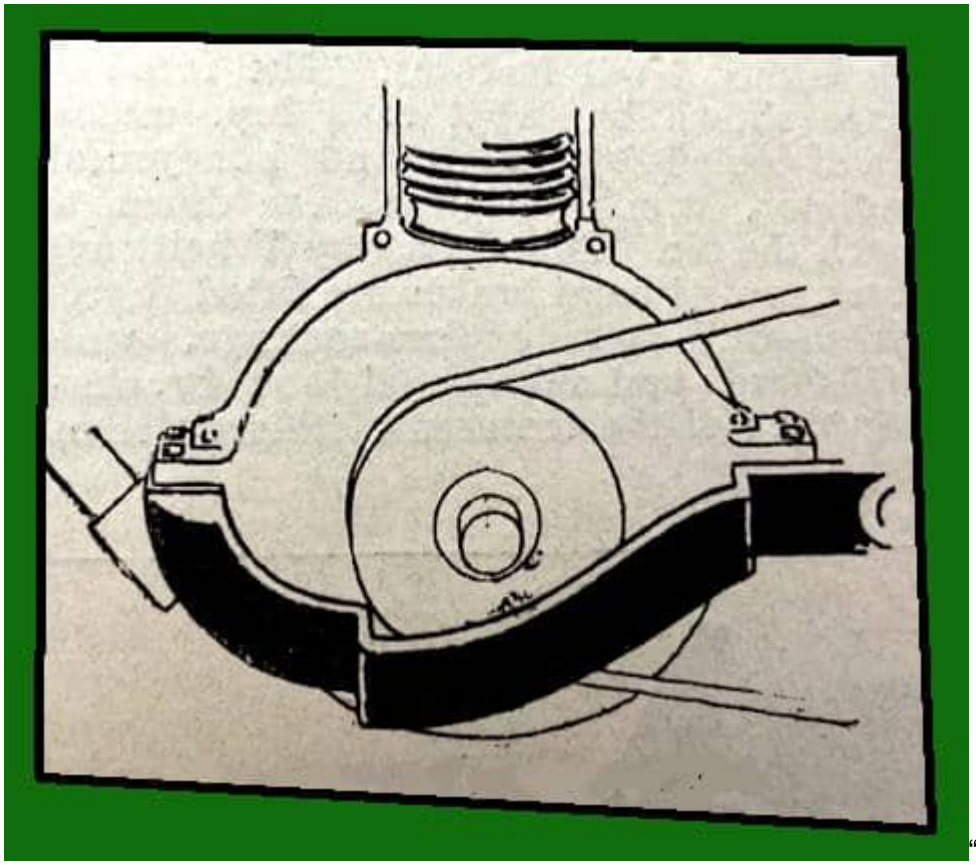
"The Rover."

lubricator pump. Thecarburetter is the best that the company can obtain: in fact, the aim has been to secure the best of everything where the article is not made at the RoverWorks. The power is transmitted by a V-belt. Thecoil and accumulators are carried in a metal case behind the seat tube. A well-designed girder fork, ample mudguards, a two-way switch on the top tube, two brakes and a Brooke's special saddle form part of the equipment; the machine with Clincher A Won tyres selling at £55. The machines are all equipped with a portable stand and carrier, whilst the rear portion of the mudguard is readily removable in case of need. The silencer is placed behind the bottom bracket, conveying the gases clear away. The exhaust tube, it will be seen, is carried right round the crank case. The same machine □ðttedwitha fore-car sells at £65. **HG Turner**, Eldon Grove, Manchester. The well-known Turner carriers are shown here and some novelties have been introduced. A new device which should prove very popular is a combination stand and mudguard lifter for either front or back wheels. The stand is collapsible and easily adjusted, and protects the end of the mudguard from the ground. In case at puncture the greater portion of the tyre is quickly and easily exposed. The new front stand carrier for motorcycles is fastened to the girder stays by means of a claw clip which automatically □ðtsanywidthor section of the stays and is actuated by a screw terminating in a ring at the end of the carrier. In another form of back carrier and stand combined the base of the carrier and the stand form the mudguard. **Riley Cycle Co**, Coventry. Motorcyclists will have to be very critical if they are not impressed by the machines exhibited here. The □ðrmarenot



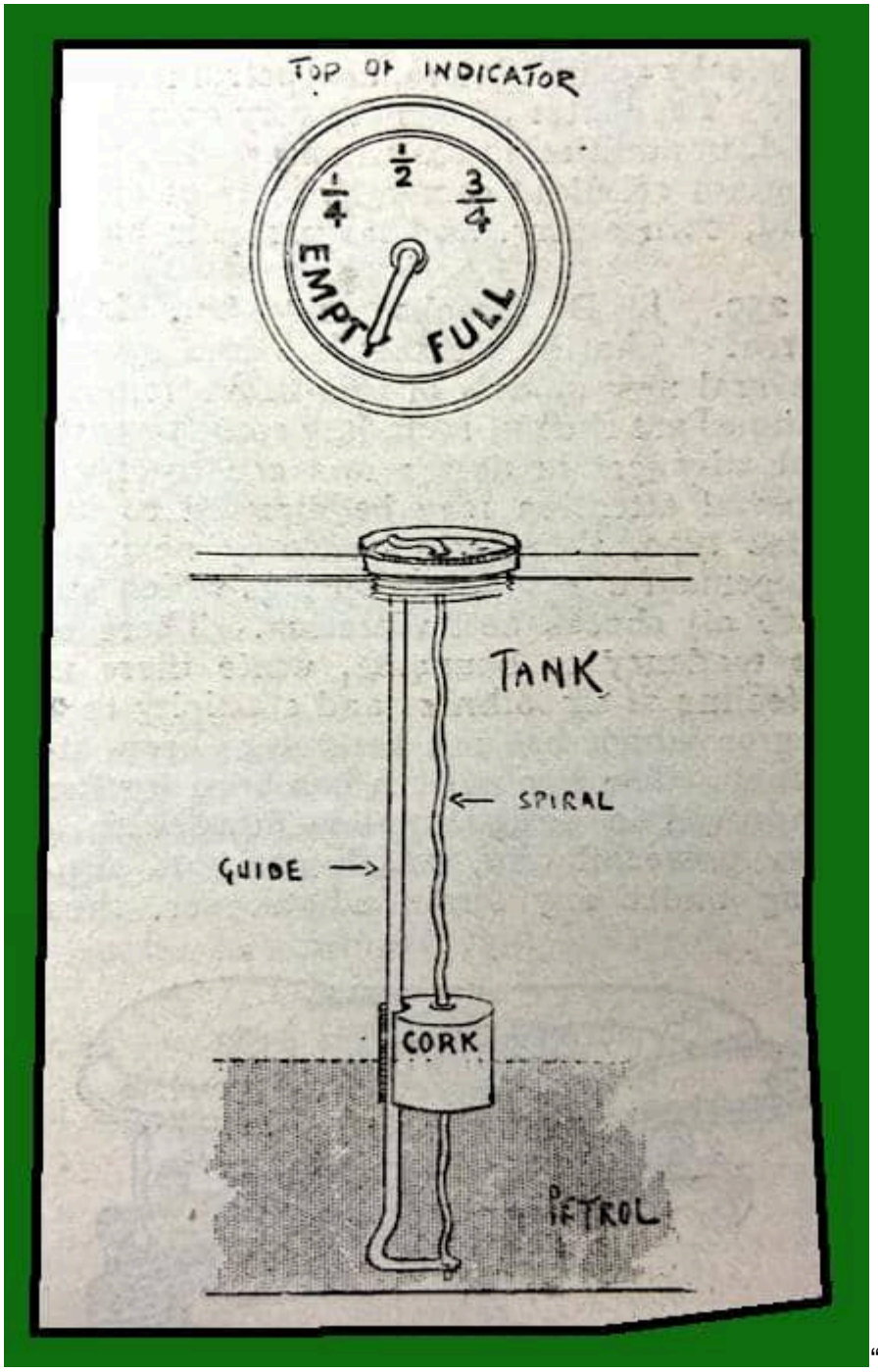
"The Riley Two-way Switch."

novices at motorcycle construction, and, as the result of several years' experimental work they are in the position of being able to display really high-grade machines. The engine, which possesses several interesting features, is placed in a vertical position, and is the work of the Riley Engineering Co. The standard motor is of 3hp, with a bore and stroke of 80x80mm [402cc]; but 2¼ and 3½hp engines can be □ðttedifdesired—the latter are either air or water-cooled. A Longuemare carburetter and Bassée-Michel coil are □ðtted, whiletwo Peto & Radford non-spilling electrolyte accumulators are adopted. The latter are operated by an extremely simple but ingenious two-way switch, the design of Mr Allan Riley, which is □ðttedontothe top rail. This device, which is connected with the usual handlebar switch by a Bowden wire, provides for the working of the two accumulators—either singly or together. The switch is on the plug or interrupter system, and its utility when the accumulators have run down can be easily understood, inasmuch as the use of two plugs gives an increased voltage. That is to say, the two sets of partly run down cells can be coupled in series, and still give considerable capacity. **Crabbe Brake Co**, Birmingham. Ingenious rim brakes are made by this □ðrm, whichis an oīspring of Cycle Components. The front rim brake for motorcycles is actuated by a pull-up lever and has a powerful spring arch. It is a □ðnepieceofwork, and is likely to become as popular amongst motorcyclists as the lighter types are amongst the legion of riders who employ them on pedal-propelled machines. **Alldays & Onions Engineering Co**, Birmingham. An imposing array of 2¼hp motorcycles please the eye here. Exclusive of the coils and accumulators,



"The Alldays' special cradle."

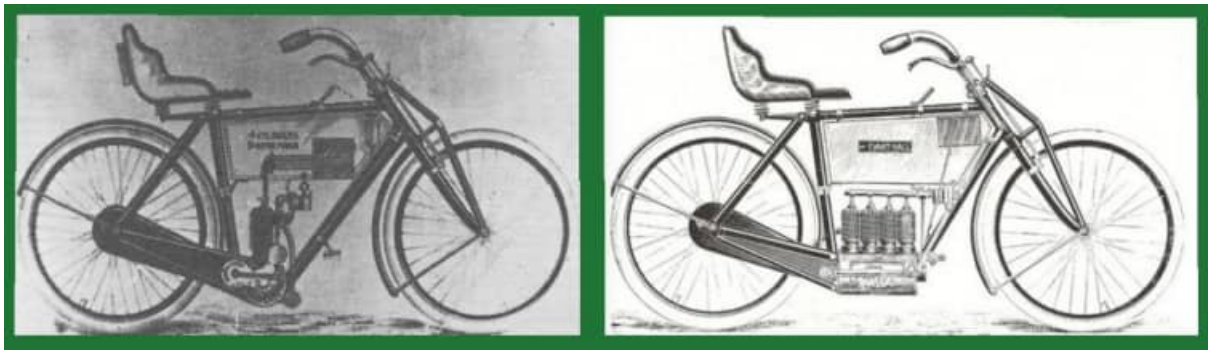
the machines and their component parts are entirely of Messrs Alldays & Onions' own manufacture—a fact of which the □ðrmarejustly proud. The engine which is □ðxedverticallyto an ingenious and registered design of cradle is excellently made, and runs at 1,400rpm. Thecrank and shafts are hardened and ground to dead size, and all bushes are especially hard and toughened. Theradiating gills on the cylinder are closer, deeper and thinner than those usually seen, and as a result the tendency to overheat is minimised. Thetank is of a very neat design, and is divided into various compartments to accommodate coil (high-speedtrembler), accumulator, petrol, and lubricating oil. Thepetrol tank holds suīicient spirit for 160 miles, while enough lubricating oil can be carried for 250 miles. Thecarburetter is of the □ðoat-feed spray type, and the belt is of V-pattern. Thecontact breaker is of the trembler type and of improved design. Theframework is very substantially built, the front forks being strengthened by side head tubes. Eīicient brakes are □ðtted,andthemachine carries detachable mudguards and stand. Buyers have.the option of either Dunlop or Re□ðex-Clippertyres.Thereisno doubt that the 'Alldays' motor-bicycle is a beautifully □ðnishedandserviceablemachine, all the parts of which are made to gaugesand interchangeable. **The Ormonde Motor Co**, Wells Street, Oxford Street, London, W. Two patterns of Ormonde motor-bicycles are being marketed for next year: the old reliable, with engine behind the



“The Ormonde Tank Indicator.”

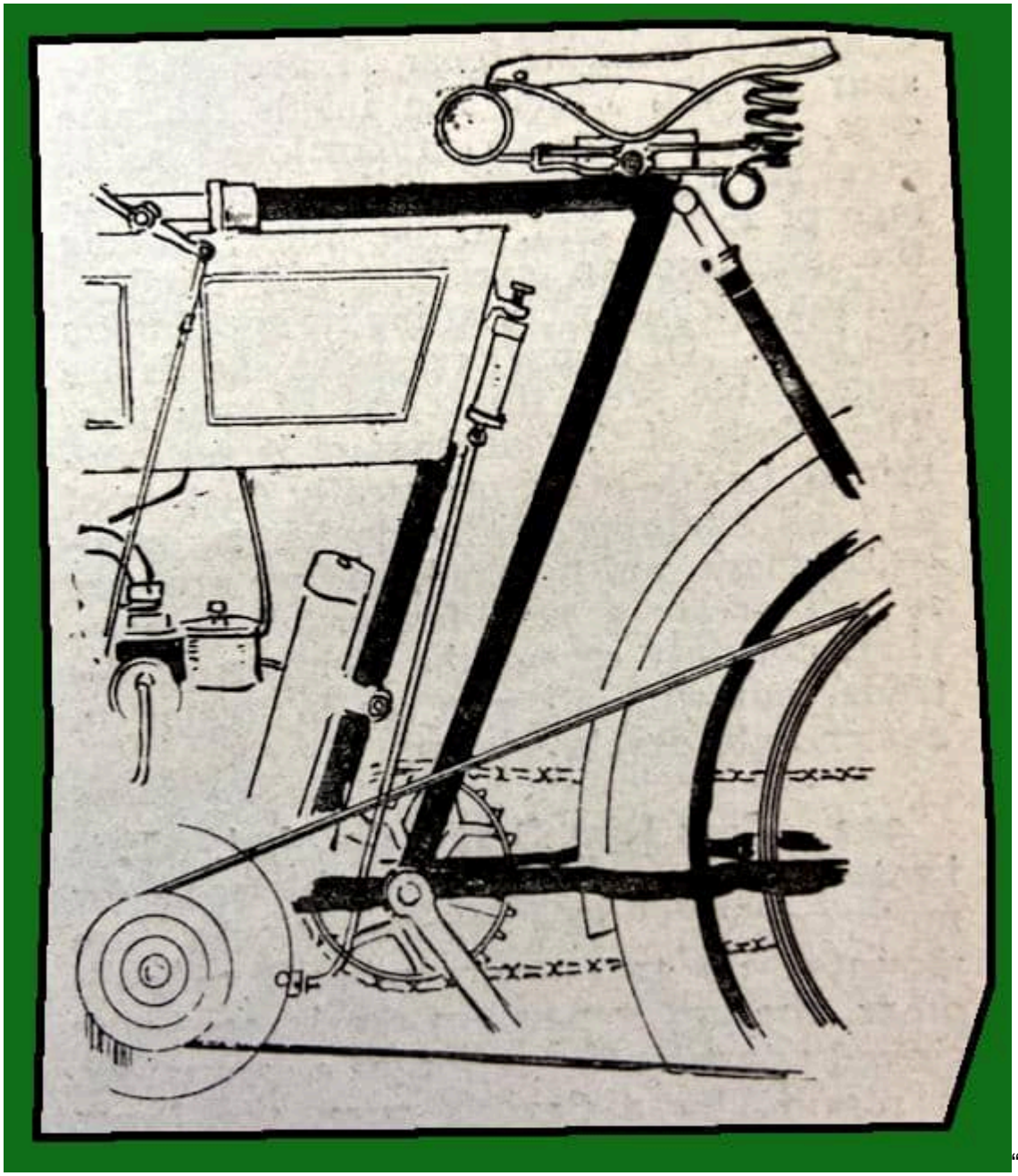
down tube is still supplied; a new pattern is being introduced which has a vertical engine, situated in front of the bracket; this engine has an unusually large □ðy-wheel. In belts the Ormonde Company have a new water-proofed cotton belt of U section and an original belt-chain, composed of □ðatpensteelblocks, lined with leather, with steel rollers on projecting pins; the rollers engage with the toothed □ðanges of the engine pulley, forming a positive drive, the back wheel carries an ordinary □ðatpulley. Inlet and exhaust valves are both mechanical and are interchangeable. The Ormonde Company have always made a feature of their automatic lubricator with sight feed, which relieves the rider of much anxiety as to whether his motor is being eīiciently lubricated. Another good feature is the long wheel base, giving stability on greasy roads. A detail improvement has been eīected at the vacuum valve in the crank case,

making a leakage of oil impossible. The carburetter—which is, of course, a spray type—has been made larger and □ðttedverycloseup to the engine. The two-to-one gear has been so re-designed that a much □ðnersettingofthe timing can be eīected. Another detail advance worth noting is the sparking plug being □ðttedrightoverthe inlet valve where it meets the purer mixture. Needless to say the Ormonde machines are □ðnishedoī in a style to suit the most critical. In the petrol indicator the rising □ðoatcausesthespiral to turn, and so move the pointer. **Chas Binks**, Nottingham, exhibit a distinctly novel type of motor-cycle—or two-wheeled car, as they term it. The motor has four cylinders, giving 5bhp in one pattern, and 4½hp in another pattern. The motor is mounted between the two main tubes of the frame—longitudinally in one

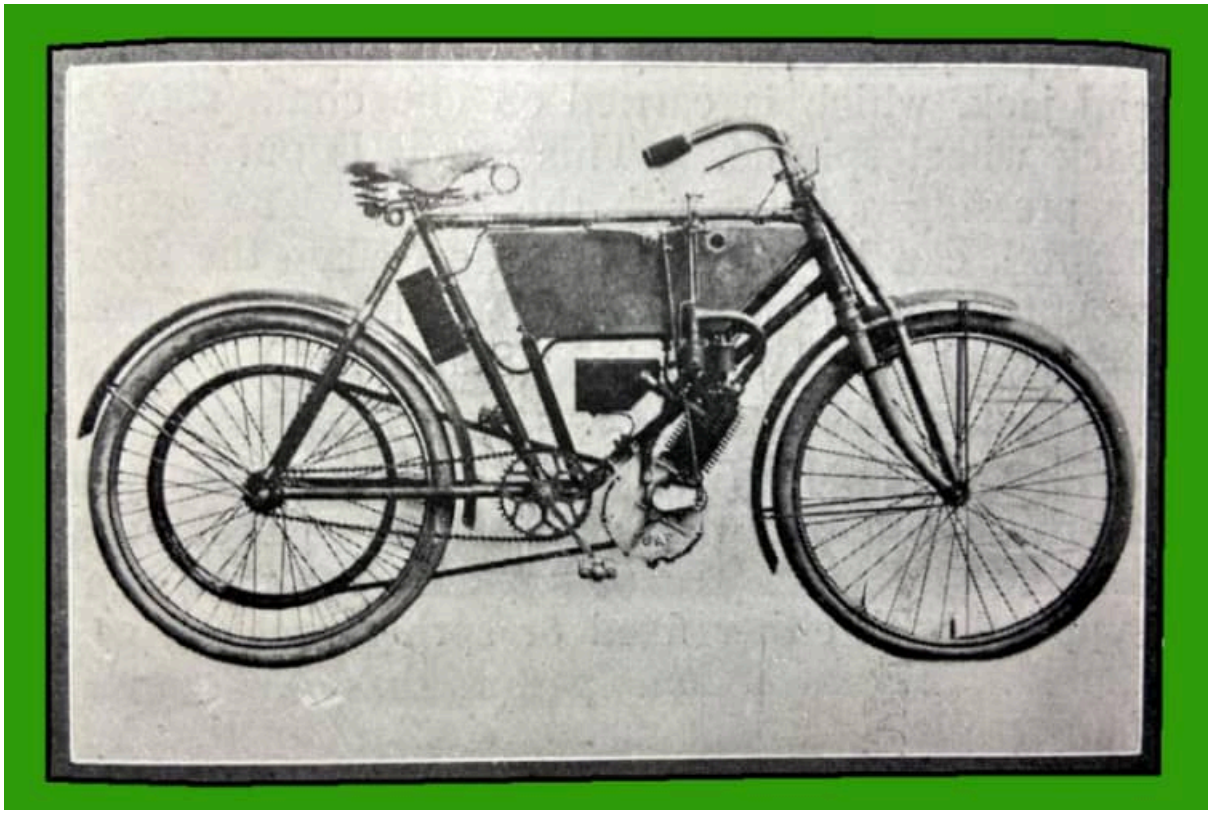


What appears to be a transverse four has the legend '4 cylinders 5 horsepower' on its tank. (Right) The 385cc in-line four was also marketed as the Ewart-Hall.

pattern, and transversely in the other. The transmission is by clutch and chain, and ignition by the usual high-tension electric system." [As if a choice of two four-pot engines wasn't enough the Binks design featured an oil-bath drive chain and a "richly upholstered spring bucket seat". Purchasers were promised "no vibration, no noise…onclutch being released the engine is automatically throttled. Speed—4-50mph. Hills—you need not consider them. Enginestarted before you mount by simply pushing switch or foot lever. You then take your seat, both feet being on the ground, raise the lever which operates the clutch, and you glide away with feet on rests."] **Meredith, Jones & Co**, Century Tanning Co, Wrexham, exhibit a special motorcycle belt, in V and □ðatsections. This is specially treated, and of greatly increased strength, and unaīected by wet or other atmospheric conditions. It is also remarkably pliable Undoubtedly the great feature about the belt is its immense strength—a point that visitors should prove for themselves by visiting this stand and testing a sample. The □ðrmalsomakea speciality of leather for motor clothing. **Rushbrooke & Co**, Moor Street, Birmingham, show motor lamps of various sizes, several small motors, and a motor-bicycle frame, with girder head, duplex forks, and large hubs, and made to take a detachable fore-carriage. A fore-carriage frame is shown complete, □ðtted with an aluminium body. A speciality of the □ðrmisamotorcycle pedal, of large size, which obviates vibration and ankle strain. The Yelstan 3hp motor shown is light for its power, has a large □ðy-wheelandnon-slipping pulley. The Vevo spark-plug is a well-made □ðttingwitha very superior porcelain. A monster show model of this plug is exhibited. A complete set of motor frame parts of guaranteed accuracy is shown, and many other accessories. **Lake & Elliot**, Braintree. This stand is especially attractive to members of the trade, as a full range of the □ðrm's high-class tools for cycle and motor work is displayed. Motorcyclists will be interested in the new pattern combined carrier and stand: this is of neat design, and can be put into use without unscrewing nuts or clips. **BirminghamSmall Arms Co**, Small Heath, Birmingham. This distinguished □ðrmhasanexcellent array of



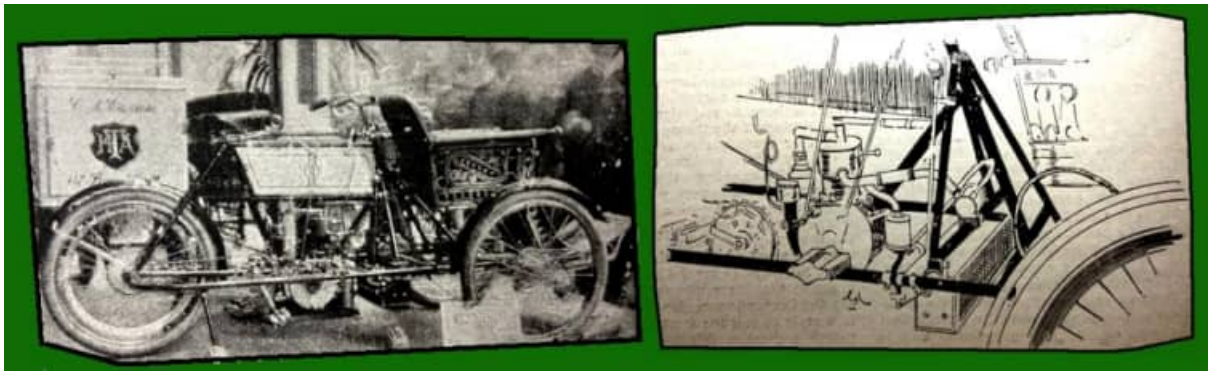
“The BSASpring Motorcycle Frame.”



"The BSA Motor Spring Frame with JAP Engine."

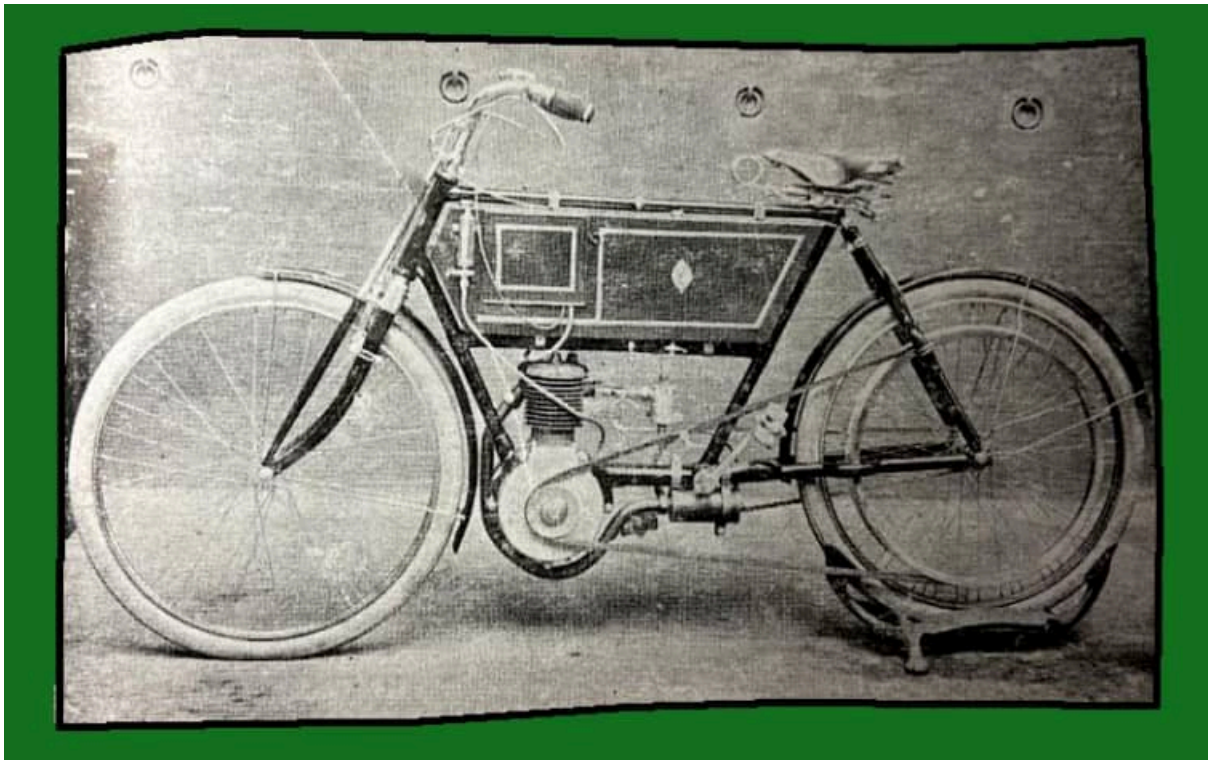
goods of interest to the motor trade. The BSA spring frame for motorcycles has been designed to overcome vibration, and will suit inclined engines from. 2hp up to 2¾hp. The BSA Bi-Flex brake is a combined back and front brake, hand applied by a single lever: it is □ðttedwiththe well-known BSA moderator spring and is under the complete control of the rider. The □ðrmalsosupply motorcycle □ðttingsofallkinds: these are beautifully made, and are of great reliability. The care bestowed upon their production has rendered them household words in the motor trade. We can cordially recommend all visitors to the exhibition to take careful survey of the various details: they will be amply rewarded for their pains. **Salsbury and Son**, Long Acre. The name of Salsbury is deservedly popular in cycle and motor circles because of the excellent character borne by the goods which emanate from this well known □ðrm. Salsbury lamps are a house-hold word, and we can con□ðdentlyrecommendshoe visitors to closely inspect the Salsbury-Flare lamps and the Salsbury-Dietz lamps. **Eadie Manufacturing Co**, Redditch. This □ðrm, amongits many types of component □ðttings, ismaking a special set of □ðttingsformotorcycles for the Minerva type of engine, both vertical and inclined. A special bridge has been registered, so that straight tubes can be used for the chain stays, the principal object being to enable the rider to remove the wheel without requiring to spring the stays. A speciality is also being made of a resilient front fork, which is composed of tubes running from D-section at the top to round at the ends, thus absorbing vibration. Not only do these tubes taper in section, but also in gauge. The continuation of these forks forms a triple head □ðtting. Theyarealsoshowing the Fagan two-speed back hub, of which they are the sole licencees and manufacturers. **JLucas**, Birmingham. Many new lines in motor accessories may be found here. Some new motorcycle and fore-carriage lamps for burning acetylene gas are shown, notably the 'Acetyphote' and 'Luminator', 'The King of the Road' is a powerful headlight for acetylene. Side lamps and back lamps in great variety for petroleum or oil may also be seen. There is a new back carrier on view which will be found convenient and useful. Engine cylinder oils and motoils embracing special qualities both

for water and air-cooled motors are supplied for high-speed engines; these oils will endure at high temperatures and . remain limpid in winter: they are also free from any sticky tendency. Various motor pumps and horns are shown, and every article may be depended upon to be of the best make and of excellent □ðnish. **The Triumph Cycle Co**, Coventry. The predominating feature of this □ðrm'sdisplayofmotorcycles is the most symmetrical design and



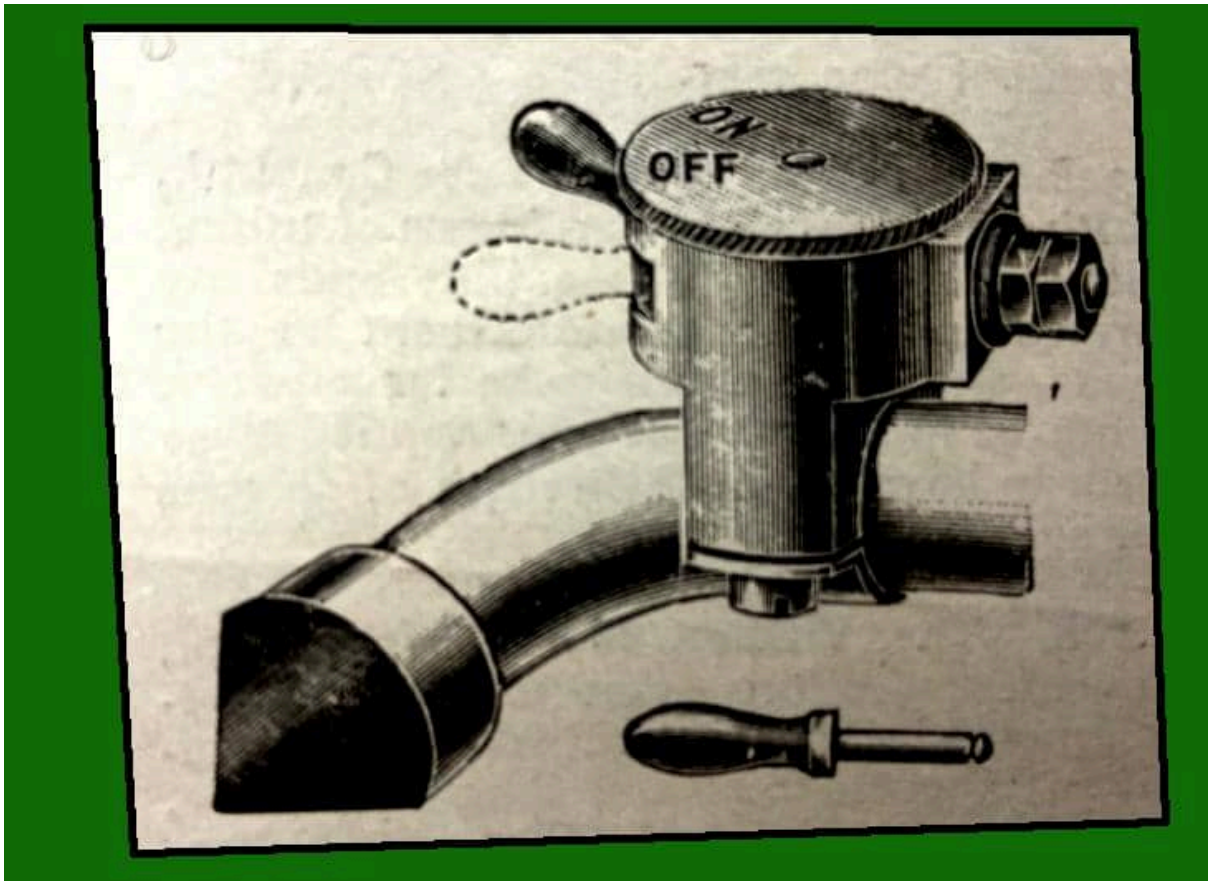
"The Triumph Fore-Car, showing arrangement of cooling device."

exquisite □ðnishofthemachines Theframe has a long wheel base, with the engine mounted vertically. The2½hp machine has the. Longuemarecarburetter, Dunlop silencer and V-belt transmission. Theignition gearhas been most carefully thought out, and a special device has been □ðttedtoobviateexplosions occurring in the exhaust box. This cuts oī the current before the exhaustvalve is lifted. Thepetrol tank is made of a special lead lined sheet steel, quite acid proof, and of great strength. Thespark adjustment is worked on a ratchet, giving a very □ðne gradation. The3hp machine is on the same lines, petrol capacity equal to 120 miles' running, double accumulators, handlebar switch, special speed governoron the exhaust, band and rim brakes, and numerous detail features. Thefore-carriage has a 3½ to 4hp motor, water-cooled by pump and honeycomb radiator, which is □ðttedlowdownto catch the air. This drives by V-belt, and three special band brakes are □ðtted. **HerbertSmith and Co**, 29, Finsbury Pavement, EC, exhibits a quantity of cycle and motor accessories of everydescription, including instantaneous connections, pump connections, carboleum motor lubricant, sparkingplugs, accumulators, switch handles, voltmeters, motor saddles, jockey pulleys, induction coils, tanks, belting, goggles, etc. **Noble Motor Co**, Pocock Street, Blackfriars, SE. Noble motor-bicycles long since sprang into popularity, and those on exhibition are well up to the □ðrm'sreputation. Theengines on the 1904 models feature mechanically operated valves, the inlet being also operated by a relief compression to enable easy starting uphill and on



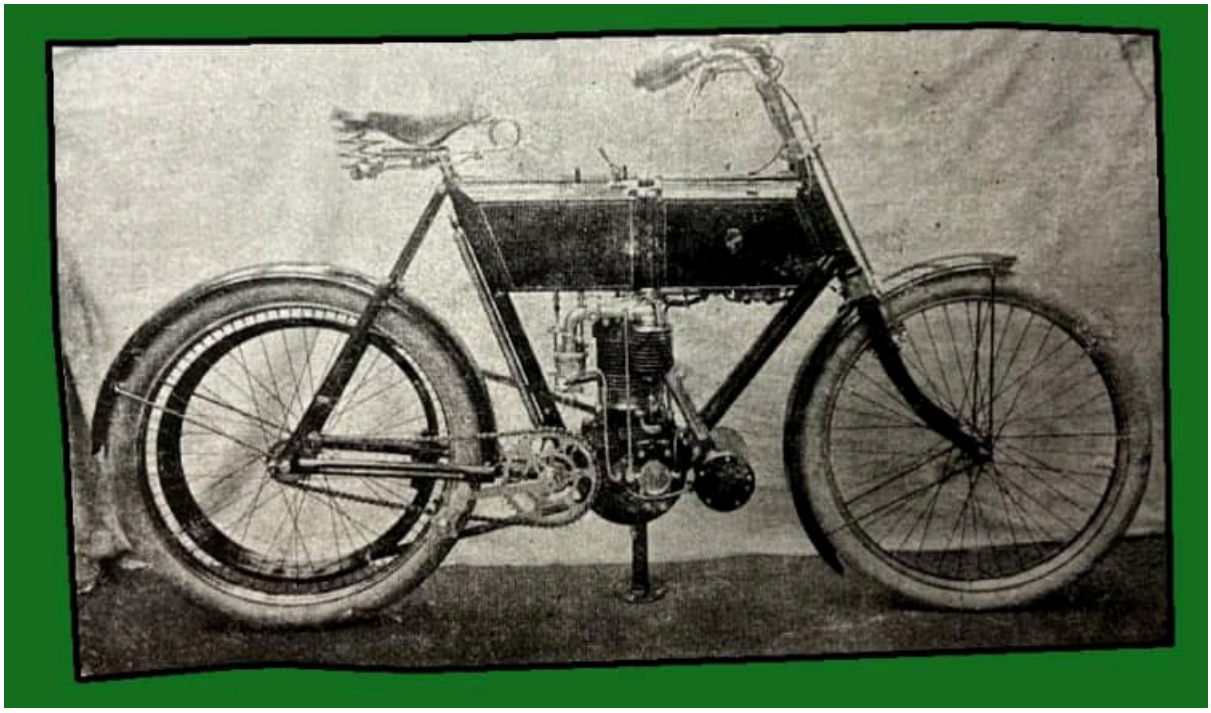
"The 1904 Noble."

greasyroads. All the machines shown are belt driven, but if desired a chain drive can be substituted. As hitherto, the coil, accumulator. petrol and lubricating oil are all contained in a neatly designed tank. Complete engine sets are shown, and also a stoutly built motor launch. **Bord Lightweight Motor Co**, Finsbury Pavement. This □ðrmshowtheir 1¾hp motor which can be □ðttedasanauxiliary to the ordinary cycle—provided there is 3¼in. clearance between the back stays at 9in. radius—or to the other pattern of the specially built machine. The motor is slung to the top tube of the machine, and securely gripped to the down diagonal. The petrol rank, round in shape, is □ðttedtothehandlebar, and will hold a supply for 100 miles. Wipe contact, ordinary coil, large accumulator, New Departure Hub, and front rim brake are supplied. The driving pulley is made detachable from the □ðy-wheeltofacilitate renewal. Themotor which is so placed on the frame as to balance properly, is supplied separately at £18 l0s, or on a specially built machine at £19 10s—a price far below anything yet attempted. A very ingenious mode of jointing the twisted hide belt is by forming two eyes, one on each end cf the belt, and on one end a tongue is also made: the two eyes are brought over each other and the tongue passed through. **Mason & Brown**, Leicester. A large display of switches, ignition coils, voltmeters, charging sets, testing lamps,



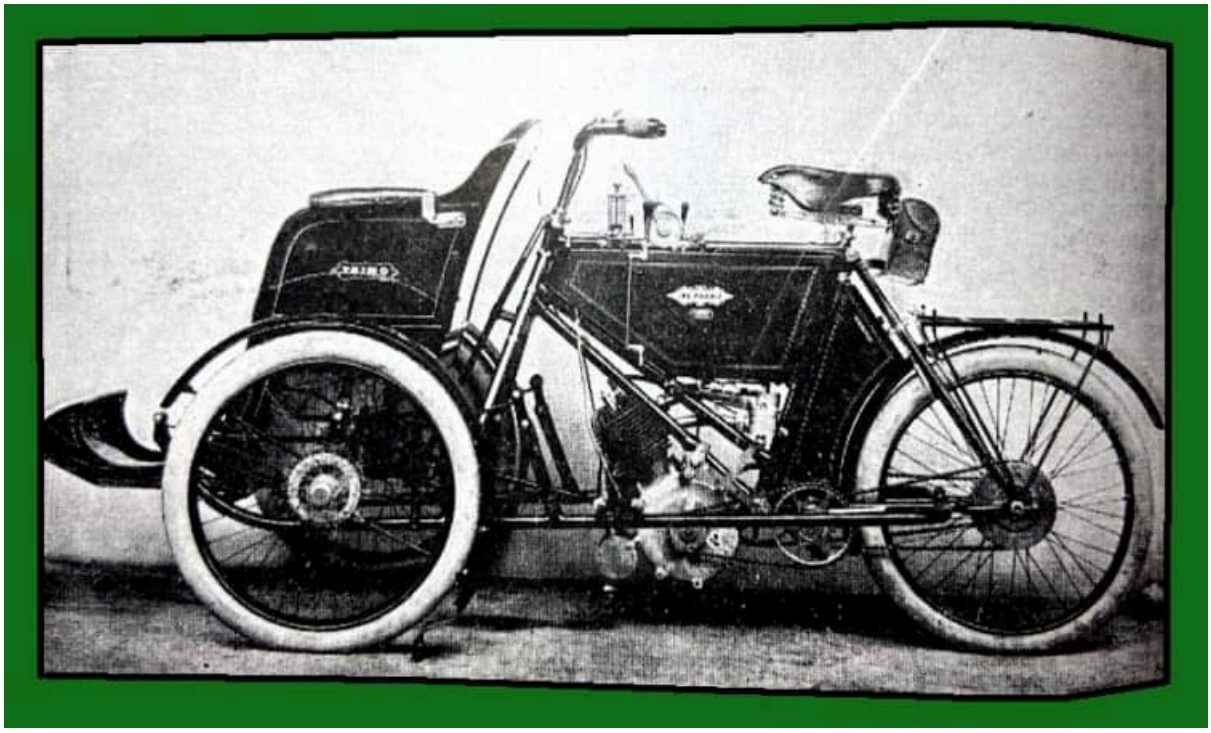
"Mason & Brown's Patent switch."

wipe contacts, accumulators, high- and low-tension wire attracts attention here. A 2½hp engine is exhibited; but the most interesting device here is the two-way handlebar switch for motor-bicycles. This arrangement consists of a nickel-plated brass case which is secured to the handlebar by means of a rounded plate and screws. This □ðxesitrigidly,and forms the connection to the frame. The other connection to the wire is made by means of a nut on the outside of the case. A pin is carried through to the inside. and is insulated by means cf an ebonite bush from the remainder of the case. The contact is made by an incomplete circle of strong German silver, inside the case, which is moved backwards and forwards by means of the detachable handle. **Robinson & Prue**, Chatham Street, Liverpool, are well to the fore with a splendid array of R&P motor-bicycles. The engine is built vertically into the frame, and two powers of motor are



"The 1904 R&P."

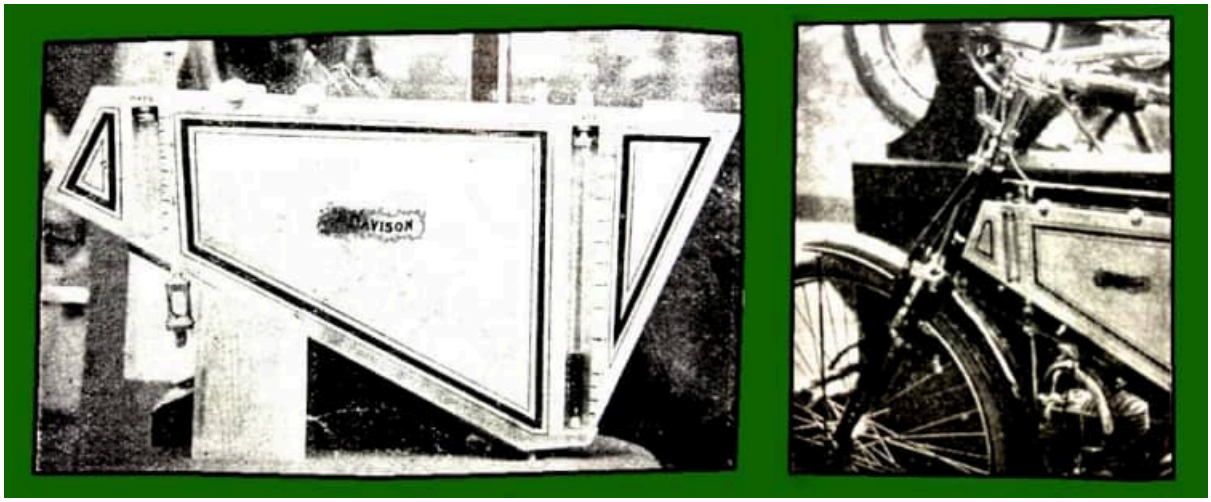
supplied, viz, 2¼and 2¾. Thesilencer is extra large and eīective, and an improved valve lifter provides for easy starting; all control is eīected from the handlebar by Bowden wire, the wires being carried in channels between the tanks for protection. Lubrication is by sight feed pump, and petrol capacity is equal to 150 miles. Theignition is by brush contact and trembler coil, the high-tension cable being reduced in length to 4in. This contact breaker is a detail that should be closely examined, as it is undoubtedly one of the best designed of its class we have seen. The 'wiper' consists of a curved and hardened steel blade, adjustable through a considerable arc of a circle. A very small movement takes up any wear that may take place on the V-piece after prolonged use. The □ðrmmakeaspecial feature of using enamel □ðnishasfaras possible to make the machine as weather-proof as possible. **JDawson and Sons**, Lincoln, show the two varieties of their well-known Lincona for motor drives, the 'Magna' and 'Standard' together with hook and simplex fasteners and a suitable dressing for the belts. Thequality of these belts is well-known, users being well satis□ðedwiththeir lasting powers. **Micrometer EngineeringCo**, Coventry. This enterprising □ðrmhave,asusual, a large number of their high-class specialities on view, including a free-wheel clutch of the ordinary Micrometer type—but extra strongly made—and a free engine clutch for motorcycles attached to fore-carriages. Thelatter is designed with the view of starting the engine with a handle on the lines of a car. It is claimed that there is an entire absence of end thrust when the clutch is is full work, and that the action of taking it out steadies the engine and prevents racing. The device is a □ðnepieceofworkmanship, every part of the mechanism having been carefully thought out. Thewell-known Duad lubricators are to be seen here, while the □ðrmisalsoexhibiting a registered design of non-slipping tyre for motorcycles and fore-carriages. **PhoenixMotors**, Blundell Street, Caledonian Road, London, N, were early in the □ðeldwiththemotorcycle and they have always sought to improve and modify in order to make the popular motor vehicle a practical article in every



"The Phoenix Trimo."

possible way. A number of the features of the present day motorcycle have originated with Mr Hooydonk and we should be surprised if some of the Phoenix novelties shown at the Stanley for the □ðrsttimedo not become general. Phoenix features set the fashion. The company show the 2hp and the 2¾hp Phoenix motor-bicycles, the former selling at 40 guineas, and the latter at 45 guineas; the new model, the 2¾hp motor-bicycle with chain drive and two-speed gear selling at £55. Besides these, there are four types of Trimo. With belt drive the 2¾hp sells at £60, and the 3½hp (twin belts) at £67 l0s. With chain drive, free engine and two-speed gear the 2¾hp Trimo sells at £70, and for a 3½hp engine the price is £75. The Phoenix tricycle without coach body for passenger can be obtained at a reduction on the above prices. To now deal with the new Phoenix features. The two-speed gear and free engine device drives solid on the high gear: in the intermediate position the gear is entirely disengaged whilst a clutch can be gradually let in, which brings an epicyclic train into operation, thus reducing the gear. The advantages when hill climbing or negotiating traīic are exceedingly great. The chain drive is taken from the engine to a countershaft placed behind the bottom bracket and thence to the rear wheel. There is separate and independent adjustment for each of the chains. The new carburetter is designed with a view to simplicity in adjustment and management, and it should prove one of the most successful features of the 1904 Phoenix. An improved luggage stand and carrier with a portion of the rear mudguard attached to it, the petrol and oil gauges and other items are well worthy of inspection. **Lycett's Saddle and Motor Accessories Co**, Birmingham, are showing specimens of their new motor saddle, which is constructed on an entirely new principle, said to reduce vibration to a minimum. Owing to the special construction the peak of the saddle is prevented from rising. The L30 La Grande motor saddle is no less than 11½in wide at the base, and 12in long. The Rawide belt is V-section, with eyelets in place of the usual rivets, it being therefore only necessary to cut a short, piece oī the belt when slipping begins, and to hook the fastener into the next eyelet. The belt is made in three sizes, the largest being suitable for the powerful motors used for fore-carriage work. An ingenious front wheel carrier, designed for a large bag and accumulator case is shown. The bag is 10½in long and 5½in high, is tin lined, and is □ðtted

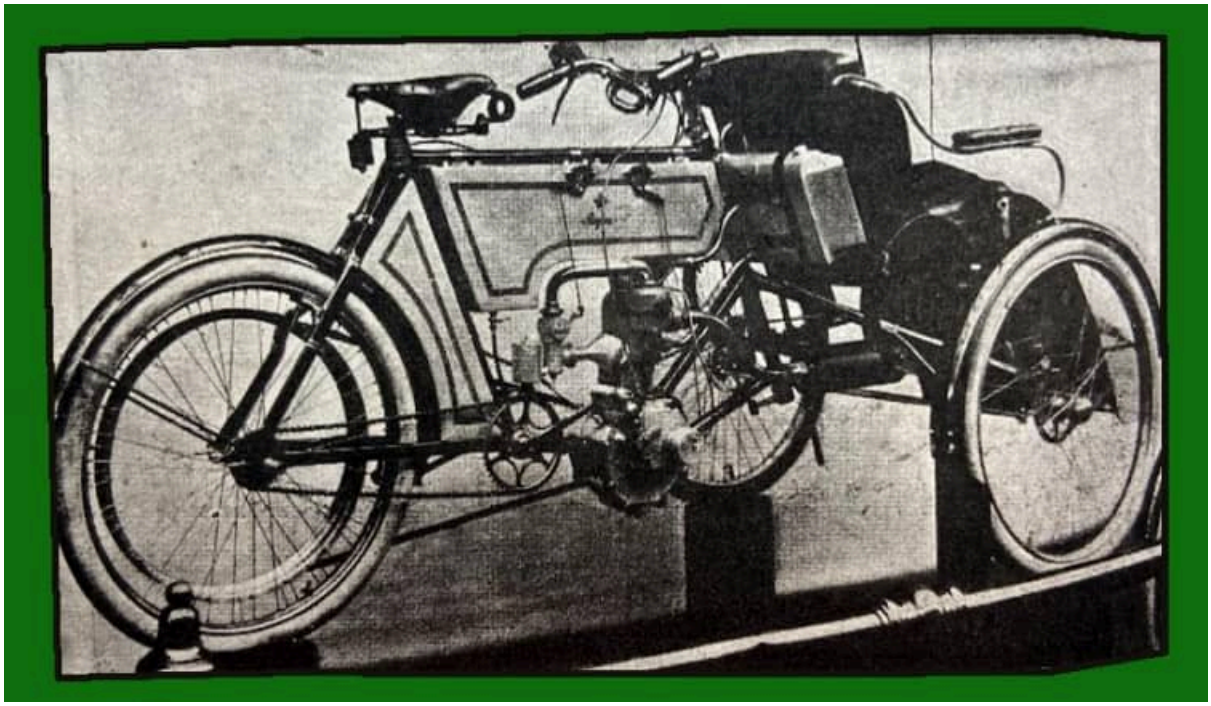
with pockets for all necessary tools and spare parts. **Messrs Bransom, Kent and Co**, Gowen Road, London, are showing accessories of every description for the motorist. A □öneexhibitof motor horns and lamps, both gasand paraïin, is set out. Neat wrenches and screwdrivers of compact design, and accumulators of all sizes are shown. A handy screwdriver, only 4in long, should prove a useful addition to the toolbag. Further on are Longuemare carburetters in various useful sizes, the newer patterns being □öttedwiththeautomatic air regulator; while an attachment suitable for □öttingtotheolder patterns is priced very moderately, and should prove a useful addition. A neat throttle, suitable for FN and similar carburetters, minus this indispensable accessory, is worth noting. TheWatawata V-belt, for which the □örmarethesole agents, is shown. Extraordinarypliability and power, with maximum eïiciency and durability, are claimed for this belt, which, it will be remembered, is constructed on an entirely new principle. Theprice compares favourably with that of the □örst-classV-belts.Varioususeful forms of belt fasteners, suitable for V-belting, are included in the exhibit. Severalmotor-bicycles are also exhibited. Thesehave all the latest improvements □ötted,andare of good design and □önish.**The Patent Butted Tube Co**, of Birmingham, show specimens of tubing with butt ends. Thesebutt ends are formed to give a reinforcement at the joints, and are claimed to be far superior to brazedin liners. Thetests applied show them to have a tensile strength of 50 tons per square inch. **The Viaduct Motor Works Co**, Coventry. On this stand are three Davison motor-bicycles, □öttedwithSimms' engines, magneto ignition, long belt drive, handlebar control and other special features. TheDavison frame is quite original, the engine being bolted to a half-cradle, just in advance of the bottom



"Gauges on the tank of the Davison Motor-Bicycle. Theoil gaugeis marked oï in half-pints, whilst the petrol gaugeis in pints. Thisis a capital arrangement and was very favourably commented on by visitors at the Show."(Right)"New Handle Control and New Girder Fork on the Davison Motor-Bicycle."

bracket. Glass gaugesare □öttedontheoutside of both oil and petrol tanks, □öguredtoshowthe quantity of liquid in the tanks. Theweight of the complete machine is 100lb, and the work and material 'British throughout'. **Brown Bros**, Great Eastern Street, London. TheBrown motor-bicycles which are shown by this □örmembodyseveralimportant improvements fo the 1904 season. The3½hp engine has been introduced specially for fore-carriages. Thenew 2¾hp and 3½hp cycles are □öttedwithatriple head and girder forks of special design, mechanically operated valves, and very large □öy-wheels.Thetankhas been improved and increased in capacity. Thereare, in addition, a number of minor but important improvements, such as the □öttingofalarger belt, a new front rim brake, extended mudguard, etc. The2hp bicycle, having

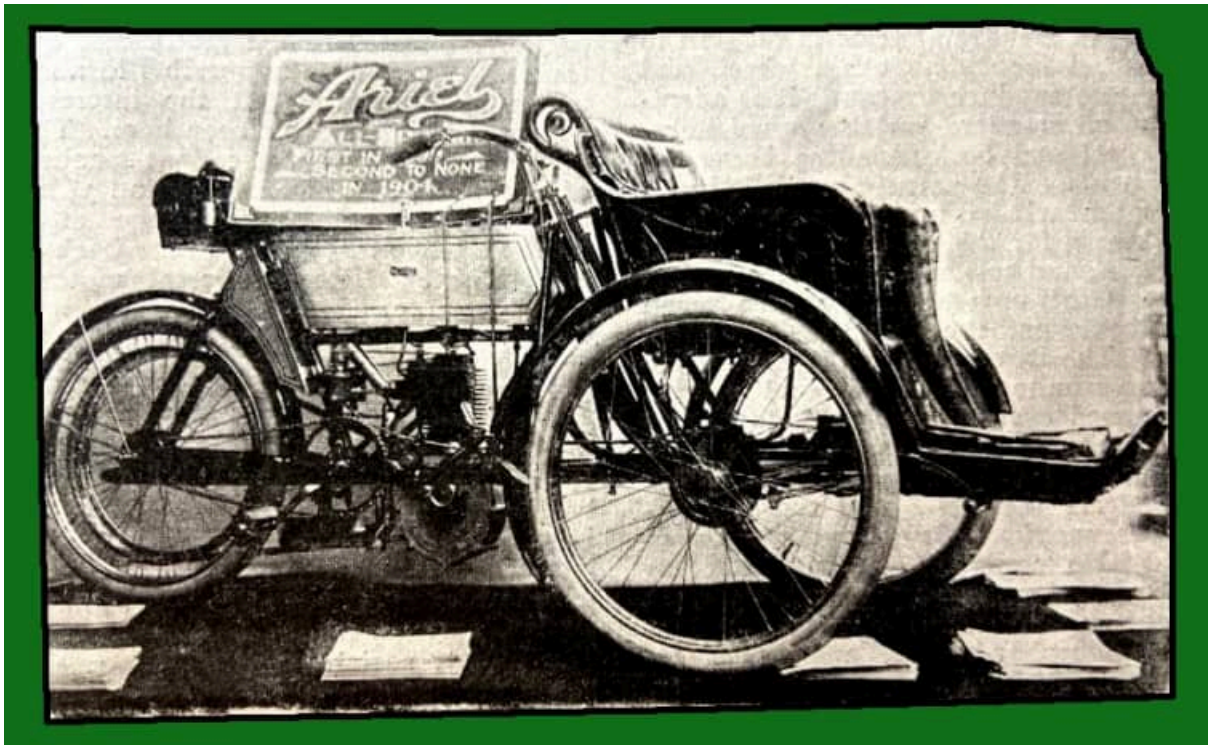
proved satisfactory, has not been altered, except in very minor details. Special attention has been directed to the construction of the crank case, which is absolutely air-tight. The belt pulley is also oil retaining, thus keep-ing the belt free from oil. An exhaust valve lifter is □ðtted: this, together with the advance sparking, are actuated by one lever. The Longuemare □ðoatfeed carburetter with a throttle is □ðtted. **Raglan Cycle Co**, Coventry. Following in the wake of other cycle □ðrms, the above company have, during the past year, devoted their attention to motor-cycles. They are showing two machines, one of which is □ðttedwith an extremely comfortable and pretty fore-car. The engine, which is of their own make, is of 3¾hp, the crank-case being bolted to the frame low down. The cylinder has a water-cooling jacket, which is fed by a tank □ðttedbehind the fore-car and on a level with the fork crown. This tank, which has a



"The Raglan cycle and car complete weigh 200lb; the engine is 3¾hp, water-cooled, and the drive is by belt. The apearance of this combination is smart and business-like."

capacity for 1½ gallons, is cooled by two air funnels which pass through it. The exhaust valve is lifted by means of a Bowden wire operated from the handlebar. The sparking plug is placed in a vertical position on the top of the combustion head, and an eī icient silencer is □ðtted. A band brake is attached to each of the front wheels of the fore-car, in addition to a Bowden brake on the rear wheel of the machine. **The Ariel Motor Co**, Bournbrook, Birmingham, show about a dozen motorcycles of a variety of types. This □ðrm have come right to the front in the motorcycle trade by the sheer merit of their machines, the workmanship being of an order that could not fail to satisfy the most critical eye. The No 1 model motor-bicycle is made in 2¼ and 3½hp sizes. The engine is mounted vertically in bracket extensions. Transmission is by V-belt, and it is noteworthy that the free-wheel is □ðttedwith a protector to keep the mud out. The No 2 motor-bicycle is a splendidly equipped machine with a 2hp Ariel-Minerva engine with mechanical inlet valve, spray carburetter, two rim brakes and Dunlop motor tyres. This comes out at the remarkably low □ðgure of 35 guineas. The Ariel side-carriage should be closely examined. This is one of the very best things in this line we have yet come across. It has very substantial attachments and long springs and handsomely upholstered carriage. This complete is priced at 57 guineas with 3½hp motor. Old riders of the motor-tricycle will view with interest the Ariel tricycle and quad shown. The tricycle has a 3⅛hp motor with two-speed gear, and every detail

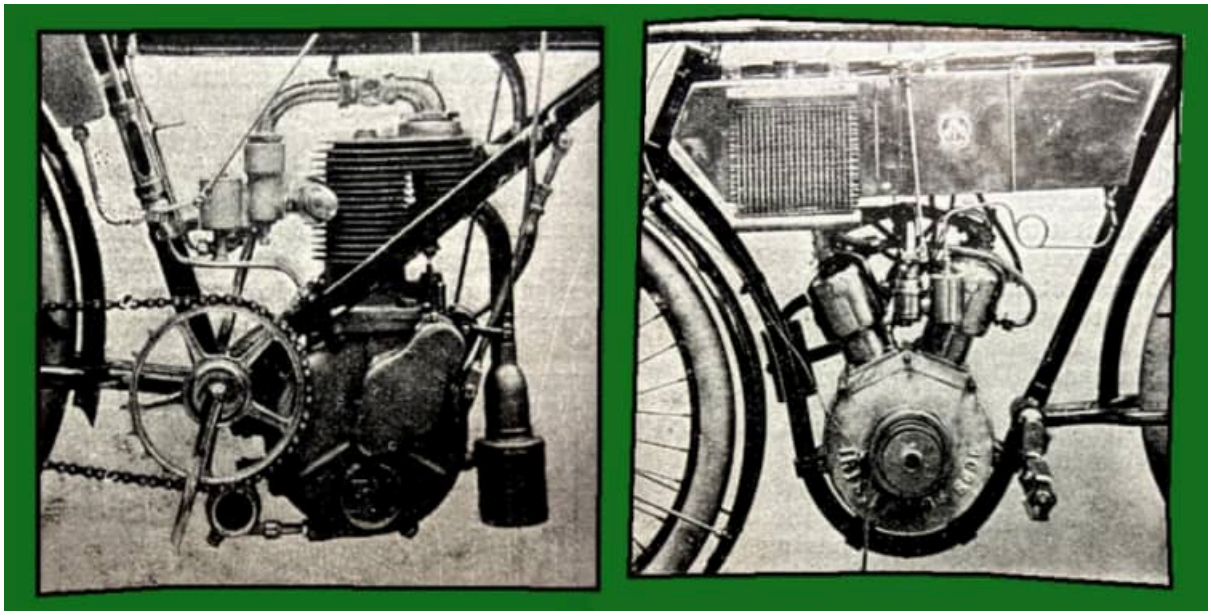
has been most carefully thought out. The price comes out at 50 guineas. The quad is a splendid piece of work □ðtted with 3⅛ hp motor, with water-cooled head and two-speed gear. The front carriage is supported on elliptical springs and is comfortably equipped. A notable feature about this machine are the foot controlled tyre brakes. This machine is sold at 100 guineas. The Ariel fore-carriage has many distinctive features. It is □ðtted with a 3hp engine, extra wide V-belt transmission, Longuemare carburetter, compensating band brakes on the fore-carriage wheels and a back pedal brake provided with an ingenious cut-out to enable the machine to be wheeled backwards. The inlet valve is mechanically



"The Ariel Fore-car."

operated, and interchangeable with the exhaust valve. The contact breaker is visible through a window and a novel worm gear lubricating device is another of the numerous valuable features of the Ariel machine. A coupler is also shown for attaching a bicycle. It has compensating joints. **The South British Trading Co**, Wilson Street, London, EC. The Vindec Special motor-bicycle, with FN engine of 2¾ hp, V-belt drive, triple head and bank brakes on both road wheels is the piece de resistance here. The back mudguard is hinged, to facilitate tyre re-pairing. The tool kit on this machine is worth noticing: a large leather bag is shaped to the recess in the frame between the down tube and the back wheel, and contains all spanners, etc, in pockets; the tyre in□ðateris□ðxed to the outside of this bag. Another good feature is a lamp bracket of sensible proportions, on which one may safely trust a valuable lamp. The SBT Co's motto is a '□ðrst-grade machine at a second-grade price', viz, £40, and it looks good value at that □ðgure. **Eclipse Motor and Cycle Co**, Birmingham. Motorcycles □ðtted with 2½ and 5hp twin-cylinder engines are staged here. The particular feature of these motors is their extreme simplicity; one lever will bring either cylinder into operation, or will cause both to work simultaneously. Twin cylinder coils are □ðtted, as are two accumulators, and a special form of valve lifter. The □ðrm informs us that they have patented a new form of drive, dispensing with belts, chains and cogs, which will give 100 diīerent gears, and which can be □ðtted to all makes of motors. Two clutches are □ðtted to the back hub, and are connected to the engine by driving

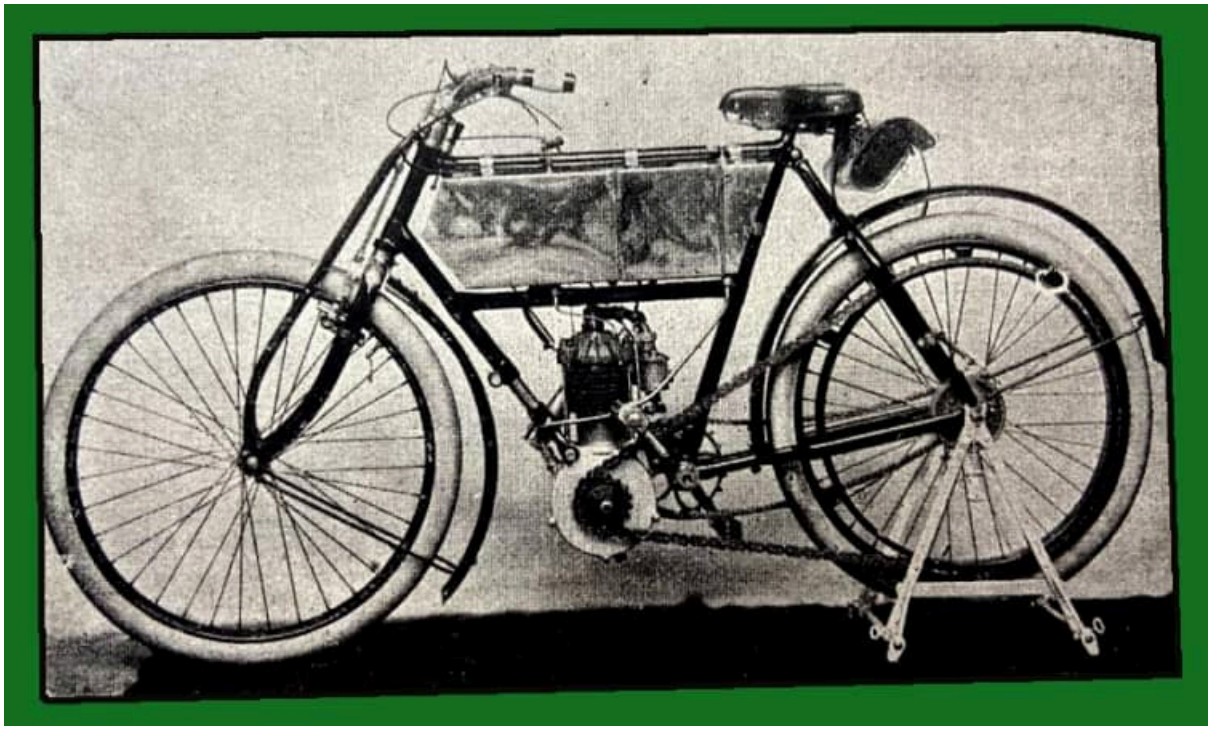
rods. On the engine is a variable-throw crank which can be altered whilst riding, and any number of gears obtained, as well as a free engine. The device will be on show during the week. The □ðrm have just placed a new belt clip upon the market. This consists of two serrated steel plates, which are made to grip the faces of the belt by means of a nut-and-bolt fastening. **The Pebok Motor Co**, Leadenhall Street, London, are showing the very popular Pebok motor-bicycle. This has a 2¾hp motor mounted vertically in a loop frame. The carburetter is the I.onguemare, and transmission by V-belt. A specially good feature about this machine is the substantial type of regulating lever □ðtted. The inlet valve is mechanically operated on some of the machines. To avoid short circuits, the length of wiring is reduced to a minimum. The tank is made in four sections, the fore compartment carries lubricating oil, the second the battery, the third the coil, and the rear part has capacity for petrol to run 100 miles. The spark lever and valve lifter work together. Two brakes are □ðtted, and the mudguards are of extra width. The frame looks an exceedingly strong one, and the forks are extended right up to the ball head. The □ðrm's speciality for this season is a new 3½hp machine, with MO valve, two accumulators, extra petrol capacity, and Bowden back brake. **The James Cycle Co**, Sampson Road North, Birmingham, make a speciality of two types of motor-bicycle, one □ðtted with the new 2hp FN engine. The frame is of substantial build through-out, and handsomely □ðnished. The transmission is by the usual □ðatraw-hide belt onto a wood belt rim. The wheels are 28in, □ðtted with 2in tyres, and the mudguards are of extra width. There are two rim brakes □ðtted, the rear one being the Bowden pattern. The carburetter is of the usual FN pattern, and ignition is by coil and accumulator. The other machine has a 2¾hp Minerva engine □ðtted vertically in a loop frame and driving by V-belt. A noticeable feature of this machine is the method of supporting the motor by aluminium bridge pieces between the down tube and diagonal, giving a very rigid support. The front forks of this machine look immensely strong, and are carried right up to the head. The carburetter is the latest pattern Minerva. Dunlop tyres are □ðtted, and also two rim brakes. The □ðnish of this machine is of a very high order, and will stand a critical examination. **Mecanique et Moteurs**, Liège, Belgium. This Belgian □ðrm shows a 3½hp air-cooled motor-bicycle; a 2¾hp water-cooled



"FN Engine, showing new lubricator." (Right) "Iris Motor-Bicycle, showing 2-cylinder water-cooled engine, free engine clutch and radiators on tank."

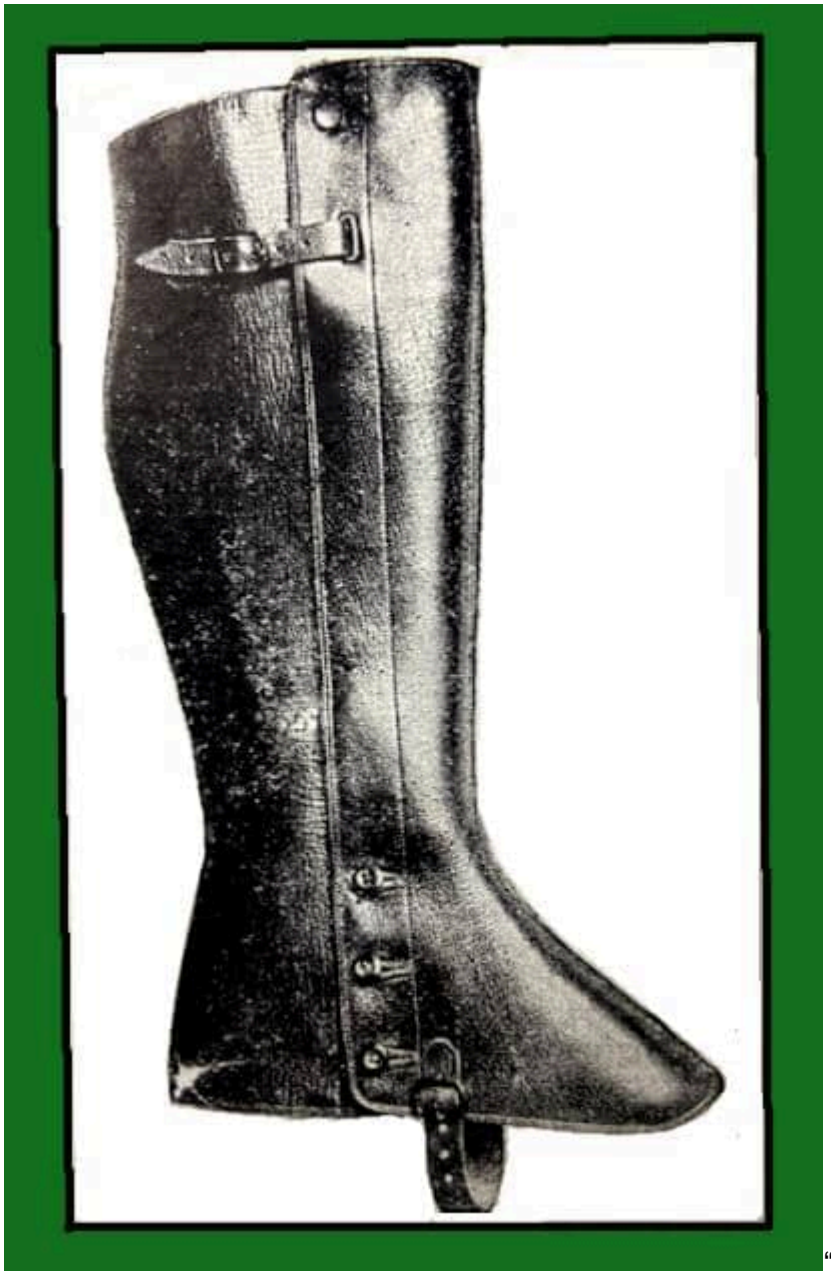
motor-bicycle; and a 12hp twin-cylindered Jenatzy-Martini car □ðtted with a patent magnetic clutch. **Palmer Tyre Co**, Birmingham. Mounted sections of all the tyres manufactured by them

are shown, those for motorcars and motorcycles being the most prominent. **Components Co**, Bournbrook, Birmingham. It would be impossible in a brief notice to enumerate all the interesting novelties which may be seen here. There are, for example, very excellent specimens of motor-bicycles, of 2, 2¼, 2¾ and 3½hp, with sociable and fore-carriage attachments, Crabbe motor brakes for back and front wheels, Liberty special motor-bicycle tyres, cycle and motor rims and valves. The Components Co stock also the Fleet cycles. The Fleet motor-bicycle is of 2¾hp, and has a tank which encloses accumulator and coil, and is □ðnished in aluminium, with black lines. It has Crabbe brakes back and front; the ball head is □ðtted with girder forks. The Liberty side-carriage for motor-bicycles is a beautiful addition. It is upholstered in red or green leather cloth, well hung on triple C-springs, with a waterproof apron. The Liberty sociable can be supplied for practically any motor-bicycle upon the market. A. number of reports of motorcycle exhibits are unfortunately crowded out. **Dover Co**, Northampton. The Dover gear-case was the □ðrst detachable gear-case placed on the market, and has ever since been in the foremost rank. It is made in a range of sizes to take up to 52 teeth, ½in pitch chain wheel, and from 17 to 20½in centres. It is adaptable to all standard variable-speed hubs, free-wheel and back-pedalling brake arrangements. The patent automatic brush lubricator included in the gear-cases is an easy means for the perfect lubrication of the chain, and acts as a preventive against rattle, Other covers shown are the Revod chain cover and the Revod tandem chain cover. The Dover people also exhibit the tubular exonite mudguard, and exonite compressed cycle handles. A novelty is the lighting-up time handle, which gives a perpetual lighting up calendar. Other exhibits are the DL steel socket spanner, the exonite in□ðator, and the Dover patent table-tennis ball. Special attention is drawn to the castings for the motorcycle and engineering trades in aluminium, gun metal, phosphor-bronze, and brass, including crank chambers, name plates, etc. The Dover people also carry out plating, enamelling, brassing, and lining for the cycle and motor trades. **Perry and Co**, Birmingham. In addition to an interesting display of motor-bicycle frames and □ðttings, the □ðrm exhibits a neatly designed and well □ðnished 3½hp air-cooled engine, complete, with contact breaker, sparking-plug and pulley. The bore is 84mm by 84mm stroke [465cc], and the driving power is suīicient for fore-carriage or trailer- attachments. A handsome fore-carriage, suitable for □ðxing to any make of motor-cycle, is also amongst the exhibits. The basket is hung on strong C-springs. Band brakes operate on drums on both sides of the axle and are manipulated from the handlebar of the cycle by Bowden wires. **Lucien Allegre and Co**, New Oxford Street, London, W. Motorists who had a desire to appear in public with clean hands visited this stand, where Savon des Chauīeurs, a special soap for automobilists, was on sale. It is retailed in collapsible tubes at 1s each, and will remove grease, oil, etc., from the hands. **Edmonton Manufacturing Co**, Angel Road, Edmonton, London, N. One of the lowest priced motorcycles in the Show was to be seen at this stand. It is □ðtted with 2¾hp Edmonton engine, a combined belt and chain drive, Vital tyres, hygienic saddle, large tool bag, girder front forks,



"The Edmonton Motor-Bicycle, with combination chain and leather belt."

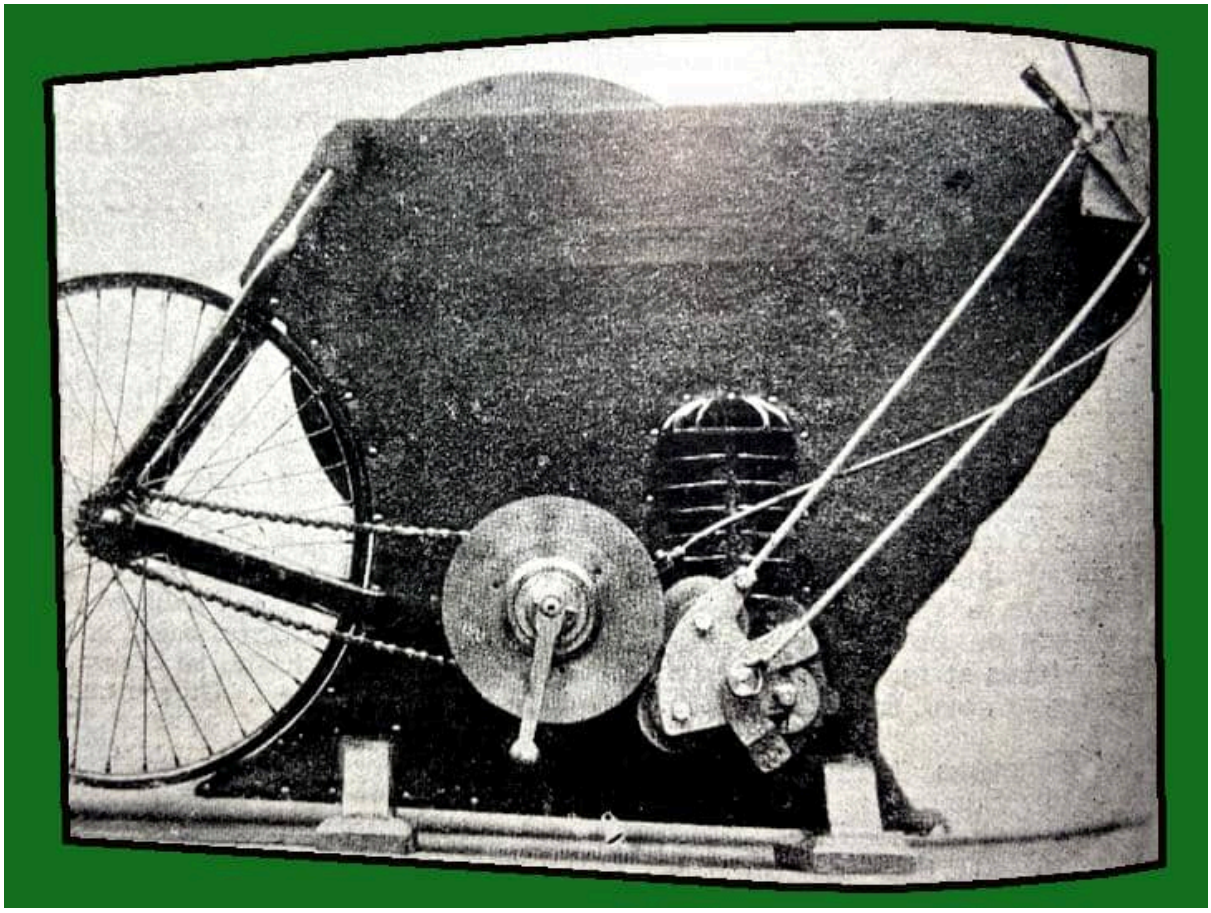
Bowden band brake on back wheel, Bowden front brake, plated tank, Longuemare carburetter. **Mabon & Co**, Clerkenwell Road, London, EC. This exhibitor showed three machines—the □ðrstaMabonTrimo motor-cycle □ðttedwithMinerva engine of 3¼hp, belt driven; the second and third being Mahon cycles □ðttedwithMahon engines of 3¼hp and weighing 110lb. A novelty is the blower for air-cooled enginesto drive oī the enginepulley. Themachines are □ðttedwithClipper tyres and Bowden brakes. **G Strauss & Co**, Upper Thames Street, London, EC. This □ðrmshowedthewell-known Fafnir engine, from 2¼hp to 24hp. Thesmall Fafnir engines have an exhaust valve governorwhich is designed to be worked from the handlebar by a rod; this varies the lift of the exhaust valve, and so regulates the power of the explosion and the speed of the engine. Thelarger engines are governed on the inlet, and have mechanical inlet valves. The Fafnir engine is made by the Aix la Chapelle Steel Works. **Steiner & Co**, Houndsditch, London, EC. This □ðrmhadnovelties in acetylene lamps which, when □ðlled,burnone hour and a half; re□ðllscanbecarried in the pocket at a cost of one halfpenny each; they are clean to carry, being in an air-tight box, which has to be broken before the re□ðllcanbeused. Other items of interest were shown, such as horns, handles, saddles, toe-clips, oil cans, chain adjusters, etc. **Thomas Smith & Sons**, of Saltley, Birmingham. Theforgings and drop stampings of this □ðrmaresowell-known as to need little description; everyconceivable, part of cycles, motorcycles and car □ðttingswasrepresented here. The. □ðrmalsomake and sell to the trade a 2¾hp motor possessingmany very practical points. Theframe is particularly well made and thought out, combining strength with lightness. Theyalso supply a complete set of the parts to enable the small maker to produce a □ðnishedmachine.Averyneat folding stand having its attachment to the chain stays and so permitting the wheel to be drawn or the bearingsto be adjusted without diīiculty was exhibited. **Geo Norris**. In addition to the Pedes-Cycloshoes which are suitable alike for cyclists and motor-cyclists, this □ðrmalsoshowedtheUtility boot, which is intended more particularly



"Norris Moto-cyclo Legging."

for riders of motorcycles. Thelower part of this boot is fastened by a strap like the Pedes-Cyclo shoe, and the upper part is fastened with an additional strap. Thestraps are fastened with special buckles which do not pass through them, but merely press into them, thereby enabling the straps to be fastened at any point. This □ðrmhasrecentlyput on the market the Moto-Cyclo leggingwhich has a stiīened leg portion and soft upper and lower parts, making it easyfor or walking. Some skins were on view showing the quality of leather employed in the manufacture of these goods. **FerrubronMfg Co**, Queen Victoria Street, London, EC.The'Gartor' lubricant for motor and cycle chains was displayed. Users speak highly of this preparation, which besides acting as a preservativecannot clog or gum. Another thing in its favour is that it does not stain the hands or clothes. **Cooper & Co**, Manchester. At this stand were to be found a large number of useful accessories, including electrical novelties. A well designedmotor-bicycle, priced at £35, was a prominent feature: this type is □ðttedwithavertically placed 2¾hp motor, having a 75x80mm bore and stroke [353cc]. Generallyspeaking it is built on standard lines, but a noticeable departure is an exposed inlet valve spindle, which if damaged can be repaired

without having to remove any caps. The FN carburetter is □ðtted. **The Motor Castings Co**, Gray's Inn Road, London, WC. A novel two-speed gear for motor-bicycles was exhibited here. This combines in one mechanism the following advantages—Two speeds, free engine, chain drive, spring clutch and great compactness. The whole gear and chain can be enclosed in a neat oil-retaining gear case. Castings for, as well as the complete, De Dion pattern engines were shown, in 2¾hp, 3½hp and 4½hp sizes, all air-cooled; also a 6hp water-cooled engine. The Motor Castings Co are fortunate in



"Two-speed Gear shown by the Motor Castings Company."

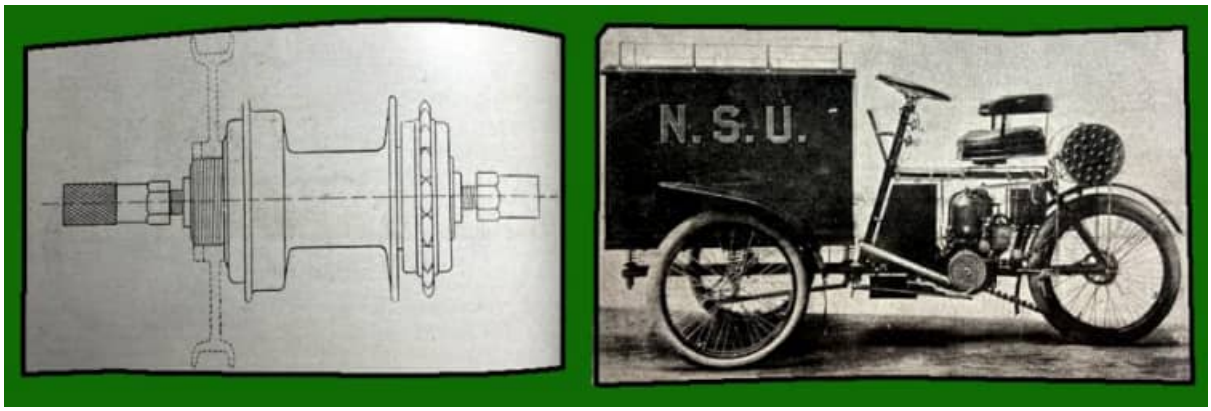
having a large stock of the new (genuine) Longuemare carburetters, with automatic air inlet, for motors up to 3hp. The trade should note this. **Black Pneumatic Tyre Co**, Glasgow. Black tyres for motorcycles and quads and made from Moseley rubber and fabric attracted considerable attention. Solution, tyre repair shields and air tubes were also noticeable: Flap covers for replacing worn out wired covers □ðgured amongst the novelties, as also did the Clydesdale covers which have an improved non-slipping tread. **James JDuī y**, Carrickmacross Ireland. The exhibit of this □ðrm consisted of a special form of spring claimed to be a universal non-vibrating device, applicable to cycle frames, front forks, saddle springs, etc; in fact, in every position where vibration is known to exist. The principle on which it is designed is as follows: A □ðat spring is so bent that it permits a spiral spring to be placed in tension between its points, somewhat in the form of the letter 'C', with the upper and lower points elongated so as to pass each other with the spring between. This idea permits of the tension being easily adjusted. **AW Wall**, Farringdon Street, London, EC, exhibited the Roc motor-bicycle, a machine having numerous novel features, and which proved a most interesting exhibit. The motor is 4hp, mounted vertically, and the frame is of extra length in the wheel base. Transmission is by V-belt on to a

rear pulley, constructed in a novel manner from steel □ðangesstampedout.Theinside of the grooveis lined with a non-slipping fabric, which. should givean excellent grip. Theignition is another special detail, consisting of a small magneto dynamo driven by chain, and working through a special induction coil to an ordinary spark plug. Therear belt rim is so devised that it provides a free engineat will. Thereis a clutch on the inside of the wheel, and this can be put in and out of action by a foot lever. Thereare no pedals to this machine, but substantial foot rests are □ðtted.Thesampleframe also shown was a most substantial piece of work, the head being especially strong. Thefront forks are duplex. A handlebar switch, extra petrol capacity, vibrationless saddle, spray carburetter, and sight feed lubricator are good features. A well designed twin-cylinder machine of 4hp was also shown. Thebrake gear and clutch lever has a combined action, and there are numerous detail improvements. **Terrot& Co**, Dijon, France. Four motor bicycles of 2½and 2¾hp were staged here. Theengines themselves do not possess any special features, but in each case a new form of silencer is

"Motor Bicycle shown by Terrot & Co." (Right)"The Cosi Car."

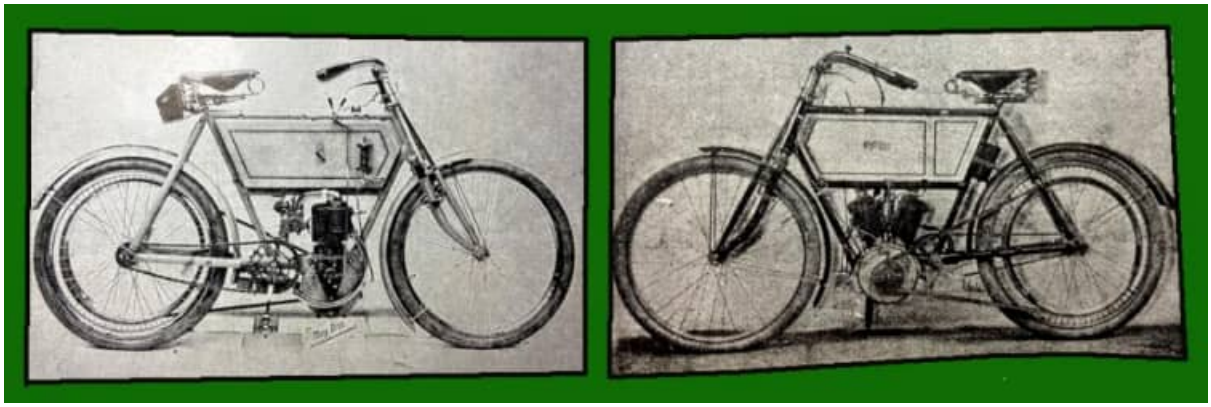
□ðtted.Thesparkingplug,too, is attached to the combustion chamber in a novel manner, the sparks being seen through a glass observer. Powerful brakes are □ðtted,oneofwhich acts as an interrupter. Thecarburetter is the well-known and widely used FN. Themachines arebelt driven, and are similar to those which haveperformed so well upon the Continent. **TheCosi-CarCo**, Warwick Street, RegentStreet, London, W, exhibited the Cosi-Car. It is an attachment that □ðts centrally overthe driving wheel of the motor-bicycle, and is made to carry one, two or three passenger.It can be manipulated from the saddle, or by means of a special handlebar. Thebody is of the 'Tonneau' pattern in aluminium, and room for luggageis provided under each seat. It is adjustable as to load, so that the weight can be equalised between the wheels of the car and the back wheel of the cycle. Theprice is 20 guineas. **Reliance EngineeringWorks**, Coleman Street, Southampton. TheNABspring seat pillar and handlebar shown at this stand havebeen somewhat improved for 1904, but the principle of ball-bearings between the two movingparts remains the same. A new method of controlling the carburetter and throttle on motorcycles was also shown. Thehandlebar is provided with a sliding knob near each handle. Theseknobs are moved by the thumbs and, by means of Bowdenwires, actuate the carburetter lever and throttle lever. **Geo Lyonsand Co**, East Street, London, W. TheTrafalgar motor-bicycle and □ðexibleside-carriage was shown in various patterns, powers and □ðnish.The3¼hpengineis situated in the popular vertical position and strongly bolted into the cycle frame. Theaxle of the near wheel of side-carriage is brought seven inches behind the centre of back wheel of the bicycle, the two machines being connected by a hinged □ðexiblejointand a rubber lined clip. This enables the cycle rider to balance and steer his machine just as if it were free. **FJAnderson**,Furnival Street, London EC.TheElswick motorcycle belt which is so widely used was prominently displayed. It

is of V-section, and is made from chrome-tanned belting with two insertions of sailcloth. It is closely copper wire sewn. A non-slipping □ðbrecementpulleycovering is a useful innovation. A good dressing for belts, styled Strapoline, was also to be seen, as was a clutch for providing a free engine, and a new form of speed indicator. **The NSU Co**, Neckarsulm, Wurtemburg, Germany, exhibited a delivery car with a 3½hp water-cooled engine featuring a mechanical inlet valve and magneto electric



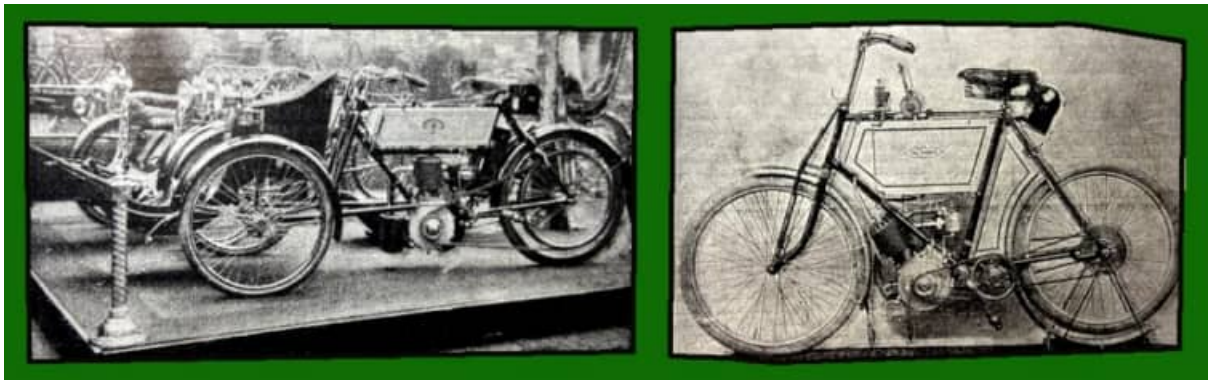
"The Hub Two-Speed Gear for Motorcycles." (RIGHT)"Delivery Motorcar, exhibited by Neckarsulmer Fahrnadwerke, Wurtenburg."

ignition. Thetransmission is by a combination belt and chain with jockey-pulley adjustment. Instead of an ordinary saddle a cushioned seat is provided. A spray carburetter is used. **Hub Two-Speed Gear Co**. For over a year the Hub Two-speed Gear Co of Salford, Manchester have been experimenting with a variable speed device for motorcycles. Theexperimental stage over, they have been able to produce a piece of mechanism which is not only as ingenious and as beautifully made as their widely used hub for ordinary cycles, but which is likely to be equally eīective. As a matter of fact the motorcycle hub is to all intents and purposes a larger model of the older device, but stronger, and especially adapted for the work it has to ful□ðl.Thehubis adapted for either belt or chain drive and can be □ðttedtoanystandard motorcycle. It is operated by a lever, □ðttedtothetop rail of the frame. By pushing this forward the high gear is obtained; the low gear is secured by an opposite movement, whilst an intermediate position gives a free engine. As the result of tests the makers have decided on a gear ratio diīerence of 24%, as they consider this to be the most suitable for the general condition of British roads. Severalwell-known □ðrmsplantoadopt it as soon as arrangements for its manufacture are complete. The feature of its being adaptable to any ma-chine is a specially valuable one, as this will enable a motorcyclist to avail himself of the advantagesof a two-speed gear without heavy expenditure on alterations. **May Bros**, Clapham Road, London, SW, exhibit comprised six handsomely designed and exceptionally well □ðnished



“Motor-Bicycle exhibited by May Bros. (Right)“The Princeps.”

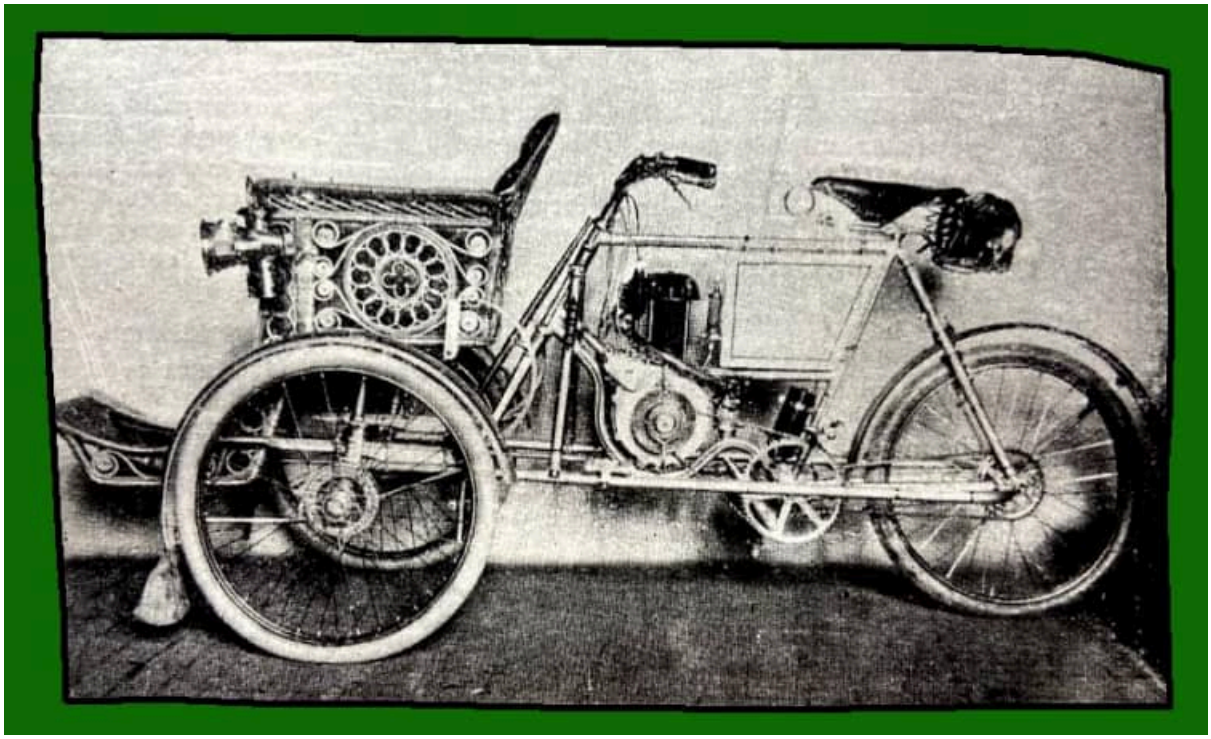
motorcycles, which attracted numerous visitors, especially as the stand was situated in the entrance. Various makes of engines of diïerent powers are □ðtted,includingMMC,Minerva, Fafnir, Rexand De Dion. Themost striking machine, however, was one with a 5½hp De Dion motor, which is specially designed for racing purposes. **JEHutton**, Shaftesbury Avenue, London, W. Several excellent models of Princeps motor-bicycles were staged. Thesewere of two types—chain and belt —and of various powers. We were particularly impressed with a 4hp chain-driven twin-cylinder model attached to a well-designed and easily steered fore-car. The engine, which has a bore and stroke of 70x72mm can be freed by the operation of a combined cone friction clutch and. spring drive mechanism, □ðttedtotheto engine shaft, and carrying the chain wheel. It is put into action by the use of a small lever, which permits the engine to be started before the rider mounts, or to be stopped for coasting and cooling purposes. It is claimed that the gradual and progressive engagement of the clutch prevents any jarring strain on the chain when starting the machine, or when running at slow speeds, and that, with the action of the spring transmission, a smooth drive is obtained. Special adjustable valves are □ðtted,whilethe Vaur’s □ðoat-feedspraycarburetter is adopted. Thecommutator is of special design; by its use only one coil is necessary for the two cylinders. Theframe is strongly built and nicely □ðnished,andtheforks are of the girder type. Thepower of the.engine is conveyed to the road wheels by a Hans Renold ⅝ pitch motor chain, and the drive being positive no power is lost. An ingenious variable gear and free engine pulley is attached to the belt driven models. It is, we believe, the only appliance at present invented for providing a gear variable at will and free engine, in conjunction with belt driving. **The Riley Cycle Co**, Coventry staged the Riley tri-car, which is □ðttedwith a



“The Riley Fore-carriage.” (Right)“The Phoenix Motor-Bicycle with two-speed gear.”

3½hp water-cooled engine. This is mounted vertically, and the power is transmitted by a long V-belt. It is convertible, and has an additional bearing close to the point where the rod is coupled

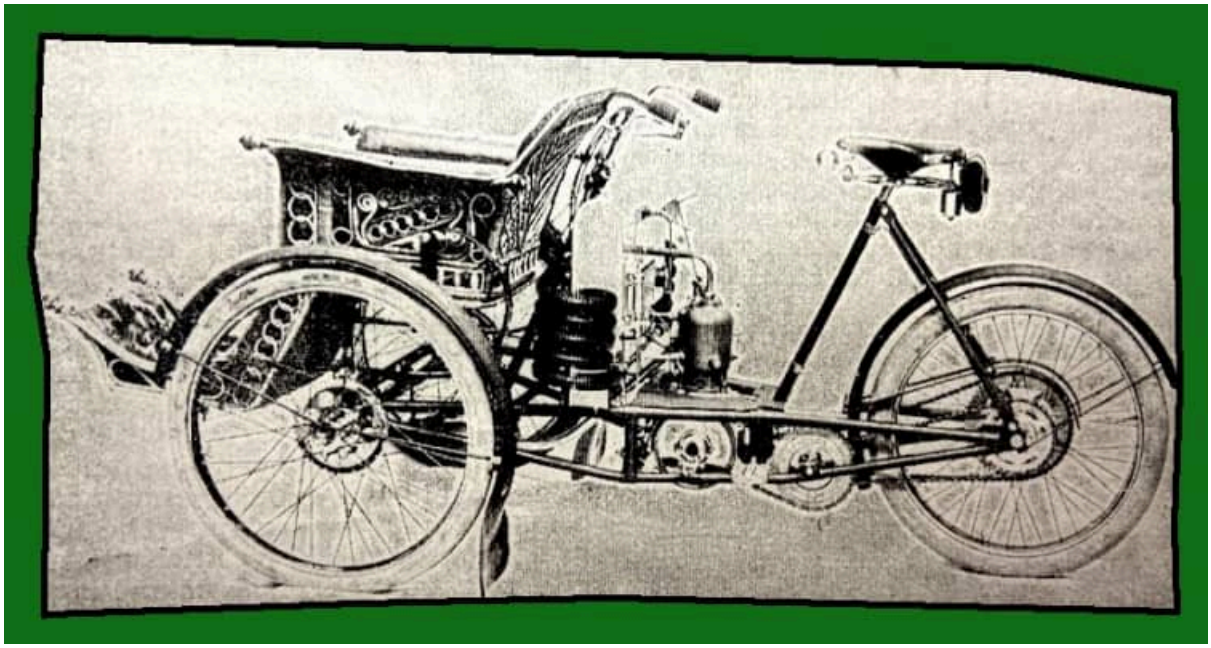
to the steering post. This arrangement, which was adopted about □ðveyearsagoonthe Riley quadricycle, gives a very rigid form of steering. **M Romain Talbot**, of 67, Rue de la Victoire, Paris, had a distinct novelty in the Zedel 2½hp engine for motorcycles, inasmuch as the inlet and exhaust valves are operated by one cam only, which performs its work by setting in motion a series of discs acting directly on the valves. Not only is there simplicity of action, but it is claimed the method ensures accurate timing. The Zedel carburetter is also an interesting device. For cleaning purposes it has a patent spring needle, worked from the outside. It is, therefore, operated without having to open the carburetter, an advantage which will commend itself to many. Mr Talbot is the sole agent for the British Colonies and Germany for the Zedel motor and carburetter, but the English trade can be supplied with complete machines □ðtted with both, or the carburetter may be obtained separately. The **Oxford Automobile and Cycle Agency**, George Street, and High Street, Oxford showed machines including one □ðttedwitha 2¾hp MMC motor, belt drive and weight 140lb. One was □ðttedwitha 3½hp De Dion engine chain-drive and friction clutch, and another on similar lines with 2¾hp De Dion engine. The Morris fore-carriage has a 2¾hp MMC motor with chain drive and friction clutch. Special features of the □ðrm'slatestmachinesare the chain drive, free engine and clutch, handlebar control, mechanical valves. Thewhole collection of machines was characterised by excellent design and workmanship.



"The Morris Fore-Carriage."

"The □ðrstNationalShowwas held in January1893. It has always been held at the Crystal Palace, and the present Show is the twelfth of the series. A good number of the best makes of motorcycles are on view."

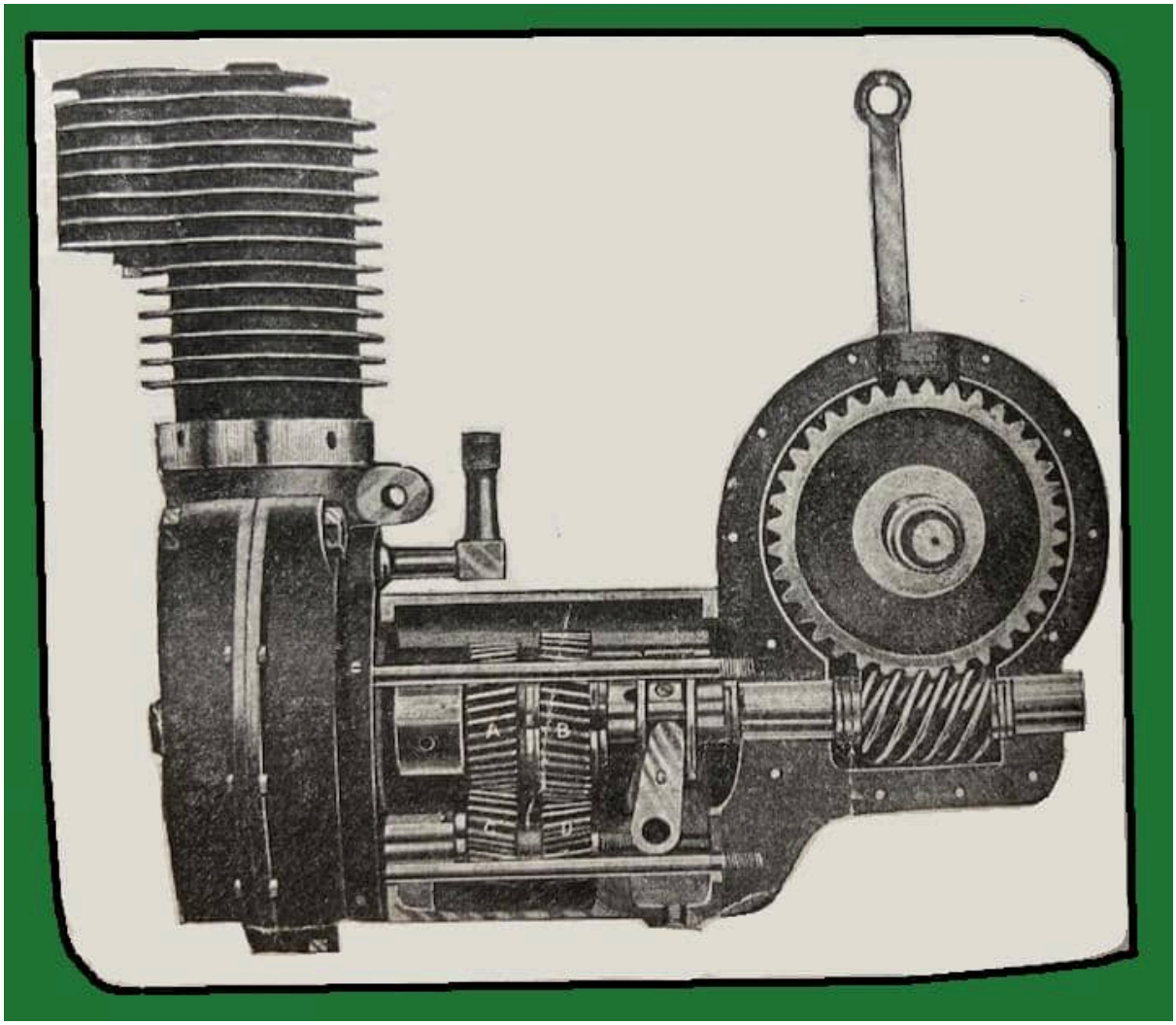
The **RaleighCycle Co**, of Nottingham, have come to the front with a bound. It has been obvious to all who know the company and its traditions and who were acquainted with Mr GPMills that the reason why a Raleighmotorcycle (we mean in the full meaning of the word 'Raleigh') had not previously been placed on the market was that hitherto Mr Mills had not satis□ðedhimselfthat he had secured or produced the best possible article. Thenew Raleighis well in advance of modern ideas. It is driven by a 3hp governedengine, the governorpermitting the machine to travel at any required speed. It is claimed that the elasticity of the engine is so remarkable that the machine may be entirely controlled through the governor.Thepower is communicated by chain from a spring clutch on the engine shaft to a counter-shaft and thence by chain again to a spring chain wheel on the driving wheel. This method gives great □ðexibilitytothe drive and overcomes all jar and shock. Themachine is well equipped in every particular. Largetyres are used and the head of



"Raleighette new water-cooled Fore-car."

the machine is a sound piece of work. Twin accumulators with a two-way switch are provided, and every detail of the machine is rendered thoroughly accessible. If required the new Raleigh

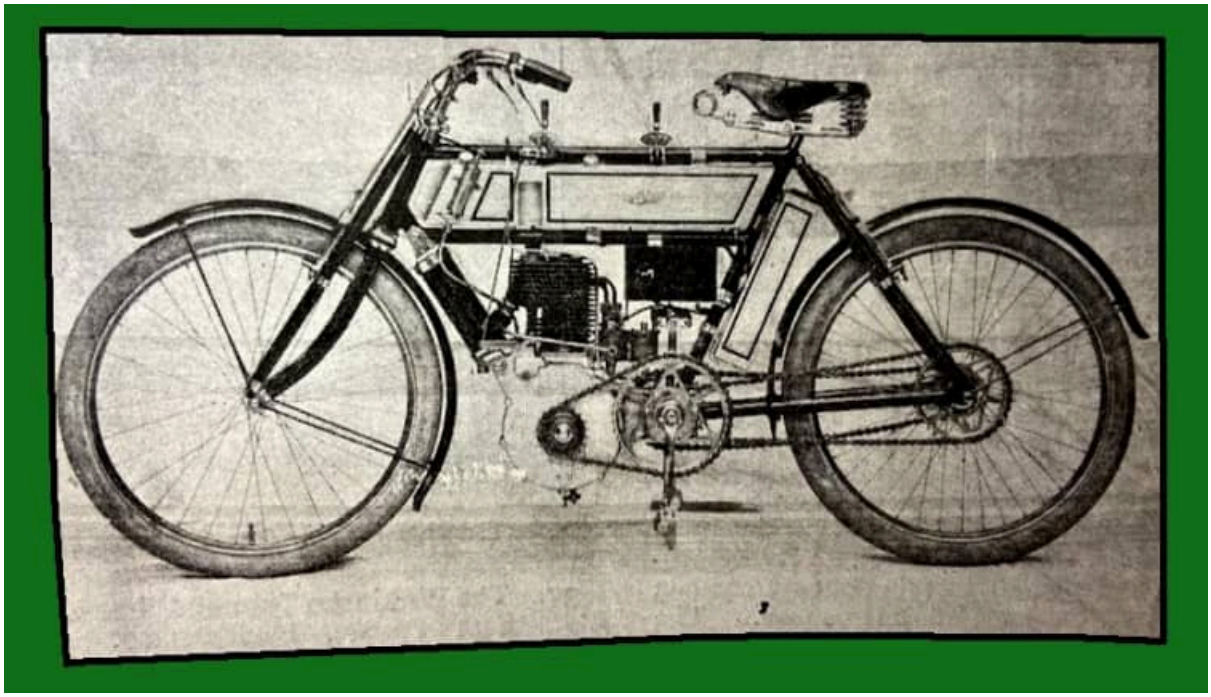
two-speed gear may be □ðttedatanextra cost. Themachine is minus pedals, but these are rendered quite unnecessaryin the circumstances. A similar machine, but with belt drive, is also made. Another Raleigh novelty is the three-wheeled motor tandem known as the Raleighette which is practically a three-wheeled car for two persons, the driver sitting at the rear on a large saddle, and the passengersitting in the fore-carriage seat. Theframe is specially designed, and is an excellent piece of girder work. Thespace between the driver and the engine is clear, and he is able to mount and dismount with the utmost ease, and to keep within the compass of the machine. The 3¼hp engine is water-cooled; the large tank in front has □ðvecompartments and carries the radiators on each side. Theupper compartment of the tank is the water reservoir; below this on the left is the oil reservoir, and below that again is the compartment for the coil; whilst on the right hand side of the tank there are two compartments, one for tools and parts, and the other for the twin accumulators. The tank between the seat post and rear wheel is for petrol, with a further useful space below. Thermal circulation is employed for cooling, thus dispensing with the complication of a pump. A starting handle is provided and the engine is started and then thrown into gear with a leather-faced clutch actuated by a foot pedal, another pedal for the right foot applying the brake. Thepower is then taken by a chain to the countershaft, whence two chains carry the power to the rear wheel. On the left side is the high gear, and on the right the low gear, one or other being thrown into engagement with the hub by means of a twisting handle. Themid-way position provides the free engine. Band brakes to the two front wheels are provided. Thenew Raleigh method of controlling the engine by varying the lift of the exhaust valve is adopted, a twisting handle being used for the purpose. Theengine is fed from a Longuemare carburetter. Theprice quoted is £95. Moderate priced motorcycles with 2hp engines are also staged. Altogether the Raleigh exhibit is one which must not he missed. **Starley & Co**, Coventry. One of the most interesting cycles in the Show is undoubtedly that staged, by the above



"The Starley Worm Gear."

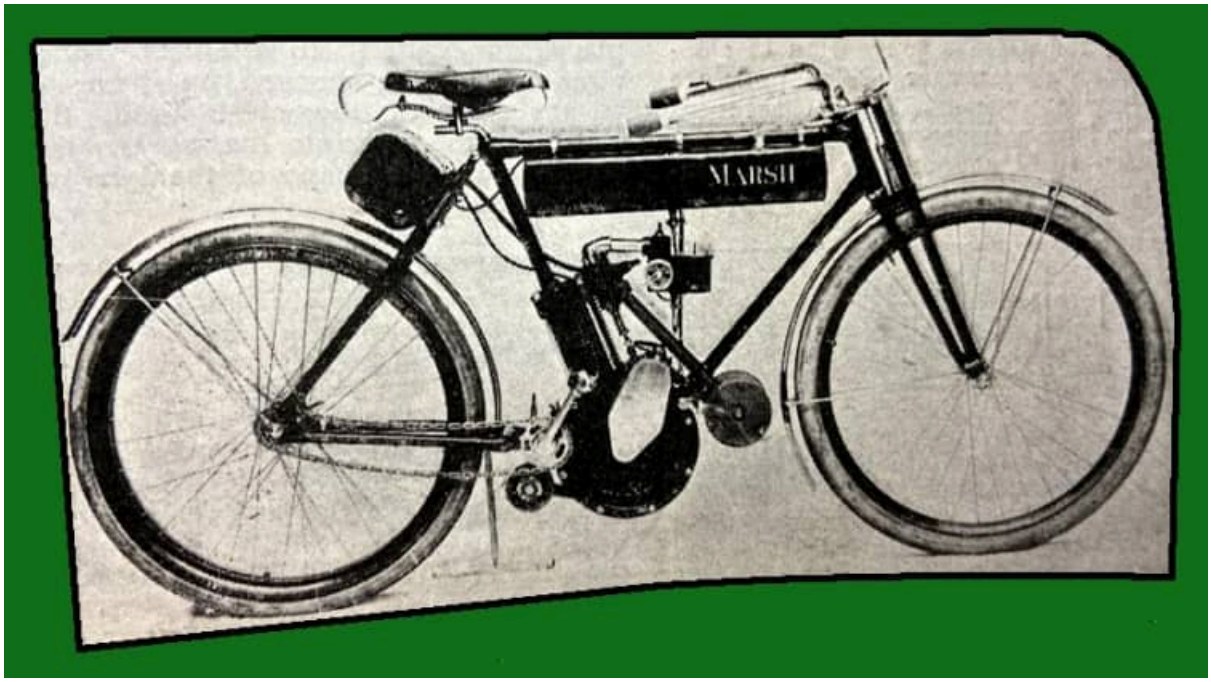
company. It possesses quite a number of original features. Its 2hp engine is of the single-cylinder vertical air-cooled type; it is free, and is □ðttedwithatwo-speed change gear. The motor drives through a single chain and a worm gear which is the most striking feature of the machine. This system of transmission not only gives increased power, but is more silent and less subject to vibration than those usually adopted. The worm has six threads and is so designed that it is reversible—that is to say, it works in unison with the worm wheel whether it turns forward or backward. The latter possesses 36 teeth and its speed therefore is one-sixth greater than the worm. A shaft passes through the worm wheel centre, to which are attached 'the usual pedal cranks. A free-wheel clutch □ðttedbetweenthecrank spindle and the worm wheel enabling the rider to 'freewheel' at will. A similar arrangement is also attached to the back hub no that the engine can be freed at will for coasting purposes. By the aid of two tube supports the engine may be put in operation before starting out. The tanks are well-designed and not too bulky. Indeed the machine bristles with good points, and we are not surprised to hear that the demand for it is greater than the □ðrmareableto supply; but this will soon be remedied. **Mills & Fulford**, Coventry. This exhibit, which is most tastefully arranged, was the □ðrsttobeready for inspection, and it is well worthy of a visit. A large number of forecars and trailers are on view, and the entire display re□ðectsthegreatest credit upon the enterprising exhibitors. The □ðrmnowsupply motorcycles and cars complete, and several handsome combinations are noticeable, the two 'Trykars' being particularly striking. On one the fore-car is well sprung, and is made of raīia

cane, tastefully upholstered in pegamoid. The other has a tonneau-shaped coach-built body upholstered in morocco. The engines are made by the Hamilton Motor Co, Coventry; they are cooled by fans connected with the driving pulley. Side-cars are also shown—one with a patent steering device being particularly comfortable—as well as de-livery cars, and a sample of the carrier which the □ðrms supply to the postal authorities. The pioneers of sociability with the motorcycle, Messrs. Mills & Fulford are never content to stand still, but are always improving upon their past record. **New Centaur Cycle Co**, Coventry. Two handsome types of motor-bicycles—chain and



"The Centaur Chain-driver."

belt driven—are to be seen here. The machines, including the engines, were manufactured entirely in the company's factory, and from their own designs. The engine on both types is placed in a vertical position, and although it is built into the frame it is easily detachable. It is described as 3hp, but as a matter of fact it is of higher power, as no motor is passed out of the testing shop until it registers about 3¼hp on the brake. The valves are readily accessible, the inlet being mechanically operated. An interesting feature of the machine is the novel form of silencer: this in reality forms a part of the frame—in fact it supersedes the usual down tube—and gives the machine a very compact and smart appearance, and is at the same time an exceedingly original and eīective device. A patent anti-vibratory head is □ðtted. This takes the form of rubber buīers which are placed between the crown and the strong duplex forks which are a feature of the machine. A Longuemare carburetter and Carpentier coil. are used, while two accumulators, which are enclosed in a neat case, are provided with a two-way switch, which enables either to be immediately brought into operation. The chain-driven machine is □ðtted with a smartly designed friction clutch which, it is claimed, prevents any harshness in the drive. Both machines are well worthy of inspection, and we congratulate the □ðrm upon the smart appearance and up-to-date features of their exhibits. The detail □ðnishis well up to the □ðrm's high reputation which they have earned for their cycle work. **WP Brough**, Kettering and London, shows the 3½hp Marsh motor bicycle, which has an American □ðavour about it. The engine is built into the frame, the main down tube of the bicycle joining the top of combustion chamber. A □ðat belt is employed,



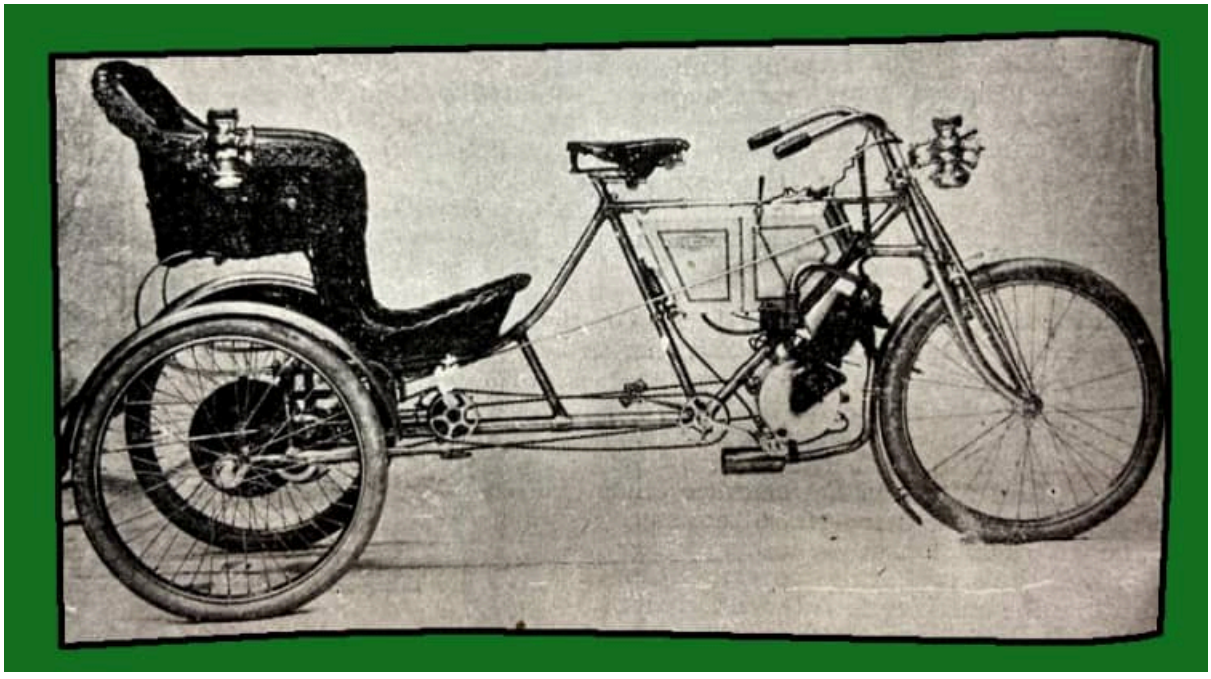
"The Marsh Motor-Bicycle—an American machine shown by W P Brough."

with a jockey for tensioning purposes. Features of the Marsh are its very large silencer, which is good, and its wood rims, which are not. **Frank H Parkyn**, Wolverhampton. This □ðrmshowsix motor-bicycles. Last year they used the Minerva engine, but for 1904 they are making heir own: this is of 2¾hp, and is situated in the usual vertical position, the tube from head to bracket being looped under the crank-case of the engine. Spraycarburetter, V-belt, and other modern details are embodied. Ignition is eīected by accumulators and coil, and the contact breaker has good features. **Self-Sealing Air Chamber Co**, Hinckley Street, Birmingham, in addition to a □ðne display of general rubber goods, are showing a range of specially strong self-sealing inner tubes for car and motor-cycle tyres, in all sizes; also a new non-slipping tread. This maybe described as a series of Ws, raised on the tyre. It is named the Zig Zag, and should prove very eīective. This □ðrmmakeaspeciality of vulcanising treads on to torn motor tyres. **The Dunlop Pneumatic Tyre Co**, Birmingham, London, and almost every-where else. The old original □ðrmarestill in the very front rank of tyre makers. Theyshow Dunlop tyres for motors, bicycles, and vehicles of every description. The Dunlop non-slipping motor tyre is now well known, and the imprint of its corrugated surface is to be found on all roads used by motorists. The Dunlop

L-R: "The Singer Belt Drive." "The Wilkinson Motor-Bicycle." "The Rex Fore-Car."

Rubber Works also produce waterproof motor clothing, rubber mats, driving aprons, in fact all rubber motor goods. The Dunlop stand is an elaborately designed edi□ðceatthefoot of the great orchestra, and prettily decorated with green trellis work and many mirrors. **Montgomery & Co**, Bury St Edmunds, have a very □ðnearrayoftheir patent side-carriages, no less than ten being eīectively staged. A novelty shown by this □ðrmisadouble side-carriage. This is really a motor-

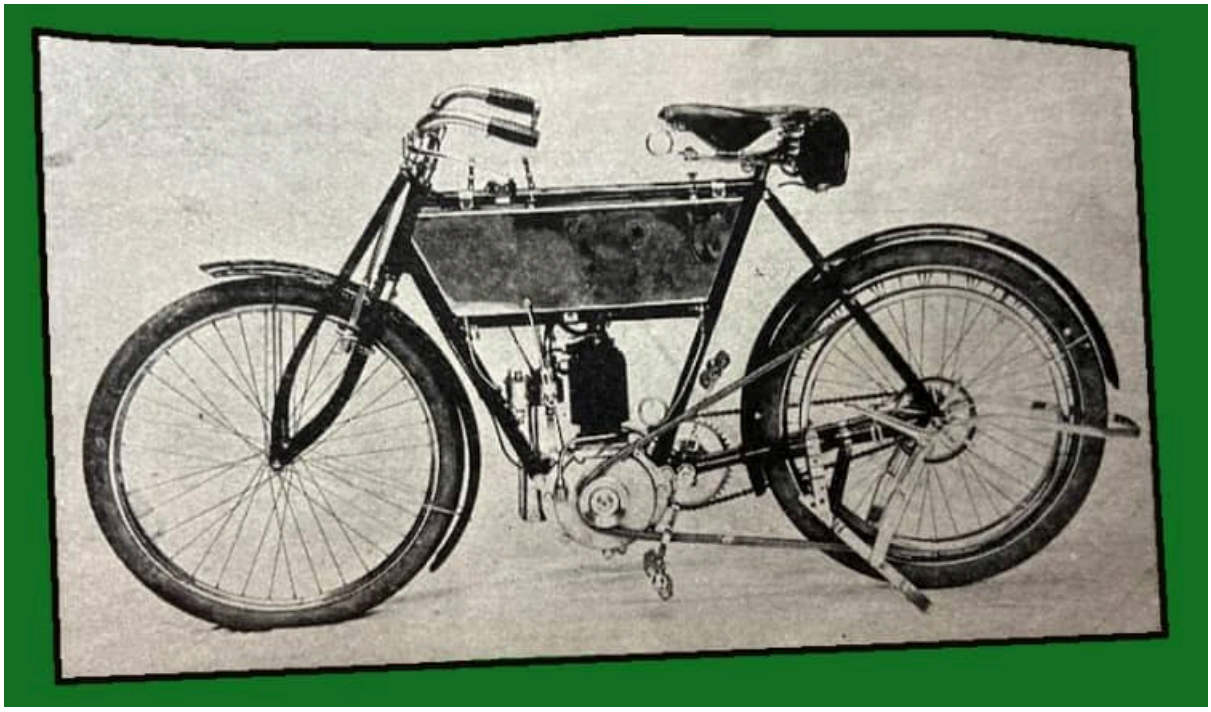
bicycle, with 3½hp motor, □ðttedwithacarriage on each side. Theside-carriages, of course, have the patent compensating joints which haveproved the secret of its success. Thejoints allow the carriage to ride with great smoothness over rough ground, and its ease of □ðxingisremarkable, only two bolts being used. Thecompany make a speciality of □ðttingtheKerrymotor, which they have found an eminently satisfactory one. TheEnsign motor-bicycle is a special line, □ðttedwith 2¾hp motor, 80x83mm [417cc], FN carburetter, with throttle and air levers and electric (high-tension) ignition is used. Thesilencer of this machine is large and eīective, and the petrol tank has a capacity equal to 130 miles' running. Theduplex pattern front forks and a neat handlebar switch are good features. The □ðnishonthesemachines is exceedingly good. **Pitcher and Bartlett**, Holland ParkAvenue, London, W, show their P&B motor-tandem. This machine has several excellent features which should not be missed, notably the design of the frame and position of the engine. Thetransmission is by a crossed belt, which the makers claim has many advantages over a plain belt aides, Theframe is adapted for a lady rider, and should prove a popular mount. **The Clarendon Co**, Coventry, show a collection of 12 handsomely □ðnished motor-bicycles. Themotor is mounted vertically in a loop frame, and has the company's' patent ball-bearing pulley □ðtted. Themotoris of 3hp, driving by belt; Longuemare carburetter and high-tension ignition are used. Theinlet valve is mechanically operated, and the front forks are duplex. The coil and accumulators are □ðxedbehindthedown tube. Themachines are □ðttedwith Dunlop or Clipper tyres. All the parts of this machine are standardised. Thebelt drive is unusually long. Thelevers are all □ðttedonfriction quadrants, and the carburetter has a very convenient air regulating lever. Thepetrol capacity is equal to 120 miles running, and the accumulators □ðttedarethewell-known Lithanode. **Hillsdon & Co**, Hungerford, exhibit their Eddington tandem



"The Eddington. A novel form of motor-tandem, shown by Hilldson & Co."

motorette, □ðttedwith4½hpAutomotor engine, water-cooled. It is provided with a Dupont two-speed gear and free engine. A special point is that the engine can be started either by hand or pedals. Thechairs are easily detachable, and a small parcels delivery box can be □ðttedfor tradesman's use. Thetyres are 2½in Dunlops. Thewhole machine is distinctly on new lines, being similar to a tandem tricycle, with rear carriage. All the control levers are arrangedfor the

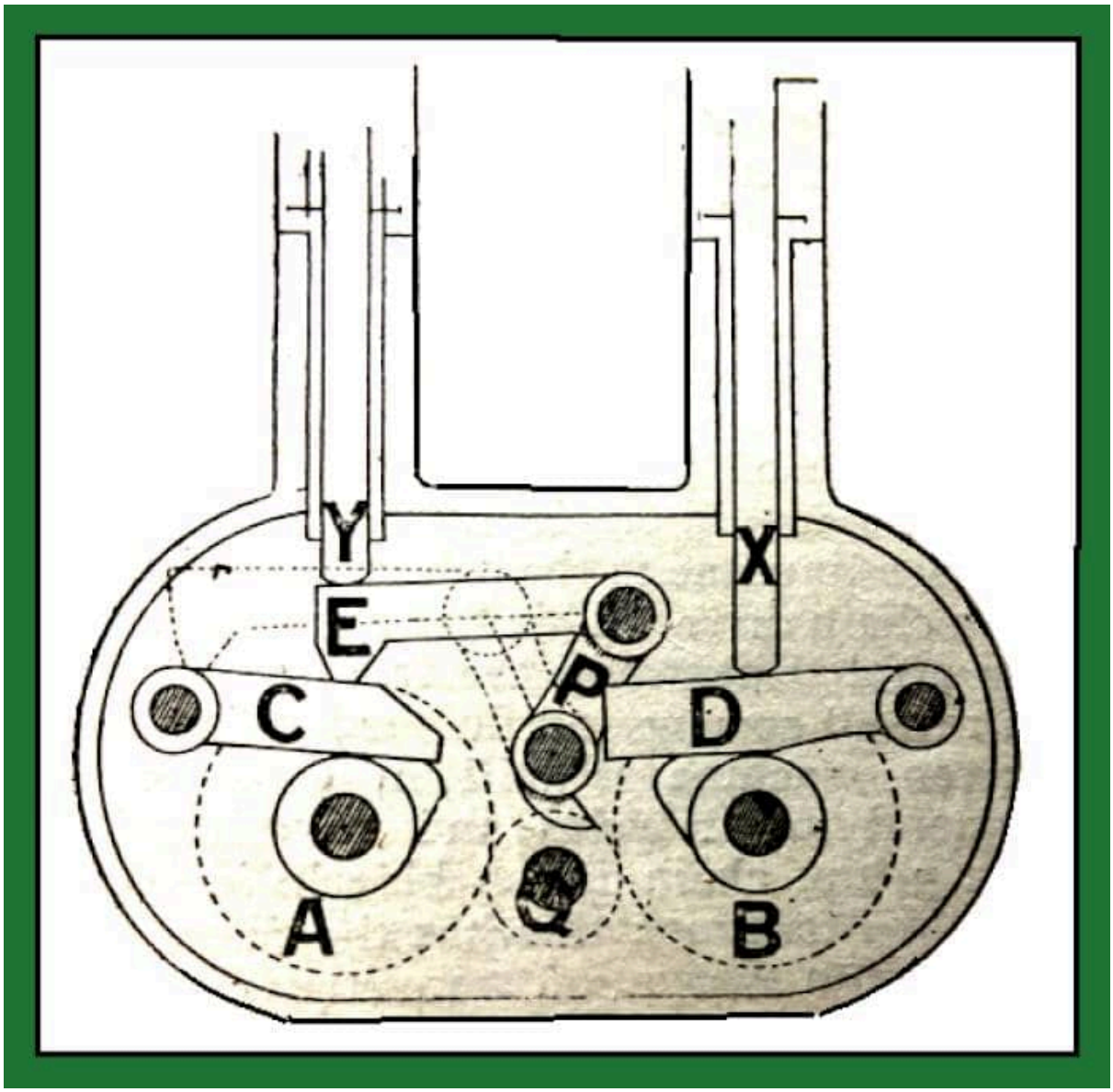
front rider to operate. Thereare two patterns, the No 1 air-cooled motor, and No 2, as just described. In the smaller power machine the motor is mounted on the down tube, and drives on to the Dupont gear by a long chain, or the makers will □ðtabevelgear and shaft drive. Another new pattern to be introduced will have a chain drive on to the back axle, something similar to the Locomobile steam car drive. Thereis also a 3hp motor-bicycle shown made up with Chater Lea □ðttings.**HansRenold**, Manchester. This □ðrmshowsa variety of chains for many purposes, from that used on the ordinary pedal bicycle to that suitable for the heaviest type of motors, and although this make of chain has been four seasons before the public the makers do not see any necessity to make any radical alteration except as to price, so that whilst the price has gone down, the quality has remained constant. A special ⅝in type is made for the chain-driven motor, and amongst its users are Humbers, Centaurs, Singers, Raleighs and others. **The Wilkinson Tyre and Tread Co**, East Parade, Hudders□ðeld. TheWilkinson non-skidding tread is now well-known. It is made in sizes and thicknesses to suit motorcycles or heavy cars, and consists of a tread or band of rubber into which are vulcanised innumerable wire spikes—similar to engineers' □ðlecarding;thesespikes project through the rubber and get a good grip of the road. TheNew Wilkinson outer cover is also on exhibition: this can be tilted over his tyres by the motorist himself, being held on by in□ðation;itacts as a prevention of side-slip, and a discourager (?) of puncture producing implements. From accounts a which we have received we believe that the Wilkinson tread answers the purpose intended. **The Star Cycle Co**,



"1904 Star Motor-Bicycle."

Wolverhampton, are displaying a □ðnecollectionof motorcycles built on popular lines. The engine is air-cooled, and is placed vertically in a cradle joining the lower tube which is taken from the ball head to the crank bracket. Theengine is fed by a Longuemare carburetter with suitable adjusting levers. Thetank holds a gallon of petrol, the accumulator, coil and oil compartment. Thefeed pump is contained in the oil tank, the oil being drawn in through an automatic valve which opens from the tank under suction, and to the engine under pressure. A compression tap is □ðttedtothe engine. The drive is by a V-shaped Adachrome belt, the gearing being 5 to 1. Thebrakes are applied to the rim of the front wheel and to a drum on the rear

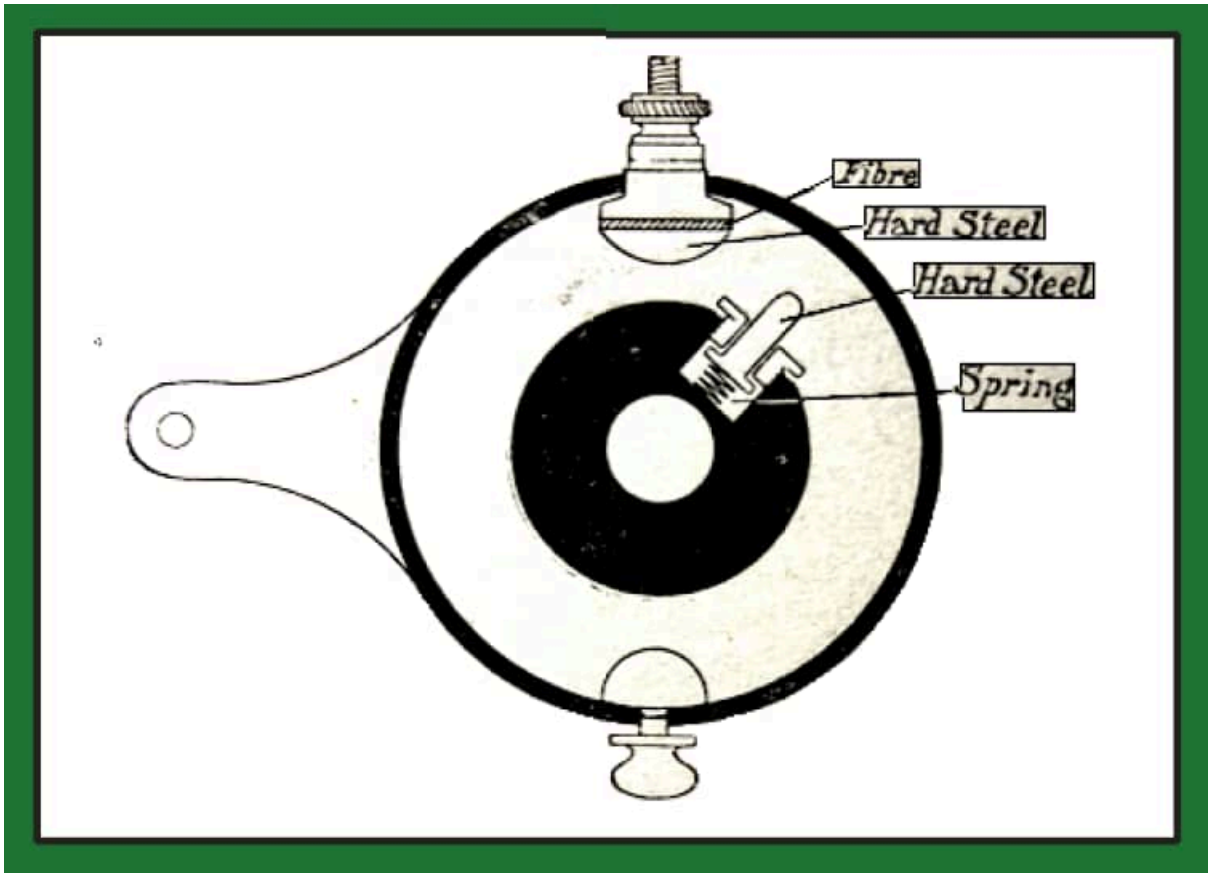
wheel. The2½hp machine sells at 40 guineas, and the 3hp at 46 guineas; the machine being equipped with tools and tool bag, guards and duplex forks. **The Hamilton Motor Co**, Coventry, who are fast coming to the front, have two of their 3¼hp engines □ðttedtofore-carriages on Messrs Mills & Fulford's stand. Thecylinder and combustion chamber of this motor is one casting, possessing large radiating gills which run half-way down the cylinder. Thebore and stroke are 3⁵⁄₁₆inand3¼inrespectively [458cc—and an early example of an over-square engine];



"Patent Valve Mechanism of Hamilton Motor. A. Induction valve, wheel and cam. B. Exhaust valve, wheel and cam. Q. Pinion on □ðy-wheelshaft.D. Lever on exhaust valve earn. C. Lever on induction valve cam. P. Rocking arm connected to handle bar with Bowden wire. E. Lever working on rocking arm P."

the width over contact breaker and pulley is 7½in while the total weight is only 581b. The contact breaker is of the wipe spark pattern, and the valves are mechanically operated. The □ðy-wheels have the crank pin and shafts stamped solid and have hardened sleeves pressed on; accordingly it is impossible for a wheel to come loose, while the system allows of the use of larger bearings. An interesting feature of the engine is the □ðrm'spatentvalvegear by means of which the induction valve is controlled by a Bowden lever hand wire from the handlebar. The

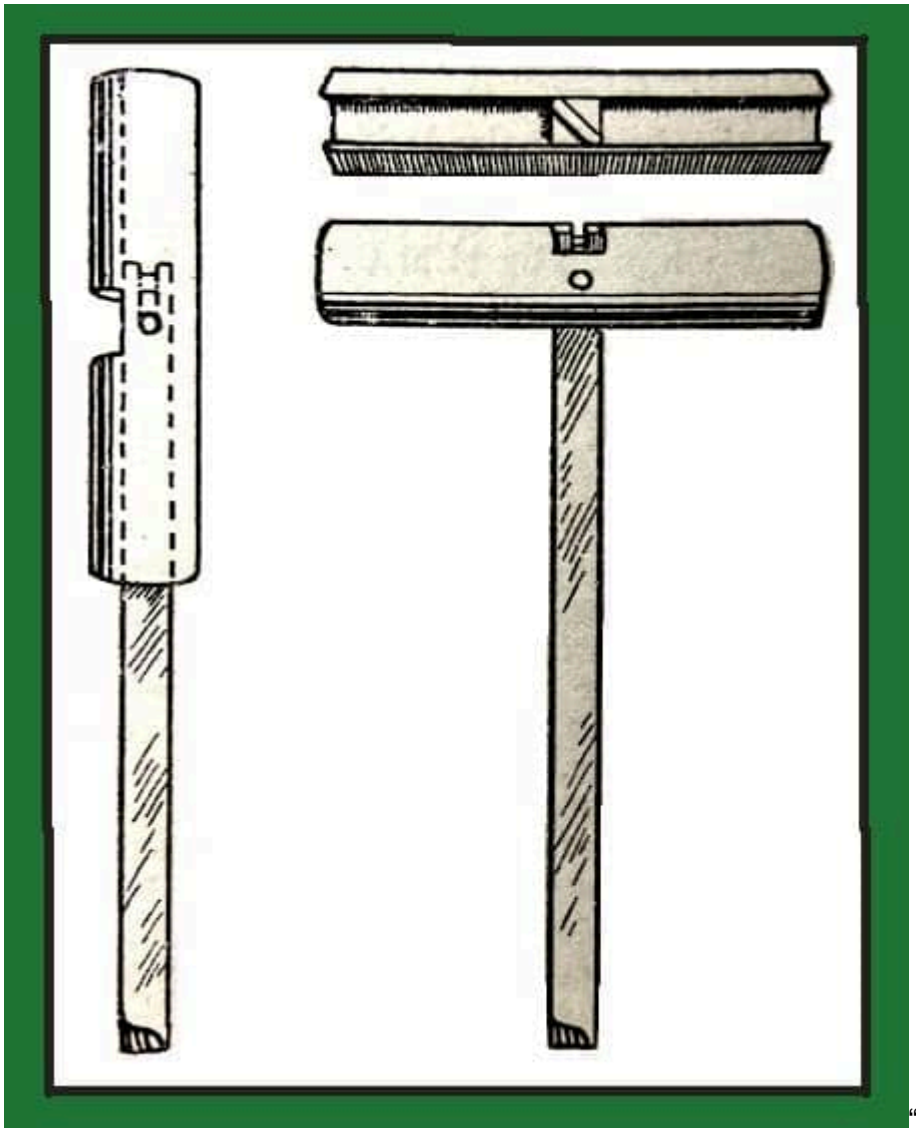
gradual movement of this reduces the lift of the induction valve to zero, whilst a further movement lifts the exhaust valve and leaves the induction valve closed. The □ðrm claims by this arrangement simplicity of control in traïic, the dispensing with throttle valve, greater economy, and higher speeds. **Charles Peacock and Co**, Clerkenwell Road, London, EC, have a highly interesting display of small motors and accessories, ignition accessories being a strong line. This □ðrm have introduced complete sets of parts for De Dion, Werner, Minerva, Darracq, Panhard, Aster and other standard motors. The small motors shown comprise a 1½ and 1¾hp, beautifully made, for a narrow-tread machine. The inlet valve is readily accessible from the outside, and a clever idea in the way of valve lifters is □ðtted. A novel arrangement of oiling is used; thus the oil from the pump is carried direct to the bearings □ðrst, and then into the crank case. The spark plug is □ðtted right in the centre of the head. The two-cylinder motor shown is 4½hp, designed for driving a fore-carriage. The other novelty is a two-stroke



"Contact breaker shown by C Peacock & Co—a new design of wipe contact maker for motor-bicycles. The principal feature is a steel plunger rubbing on a hardened steel sector, giving a very easy and certain contact. It runs in oil."

motor, remarkably light, weighing 18lb only, and claimed to develop 2¼hp at a very high speed. A very long bearing is a good point, and also an automatic oiler. The radiating surface is extra large. Other good lines are gear-wheels, lamps, horns, accumulators, pumps, speed indicators, measuring instruments, etc. **The Buckley Motor Wheel and Carriage Co**, Sheïield. A 2½hp engine is slung in an aluminium spoked wheel on the lines made popular by Singers, with the additional advantage of a through axle: a small pinion on the engine shaft drives the large gear wheel. **White & Poppe**, Coventry. This □ðrm shows a motor, designed and made entirely by themselves, having many special points, amongst which is the great advantage of being able to detach both the exhaust and inlet valve boxes for cleaning, whilst the adjustment is made by a

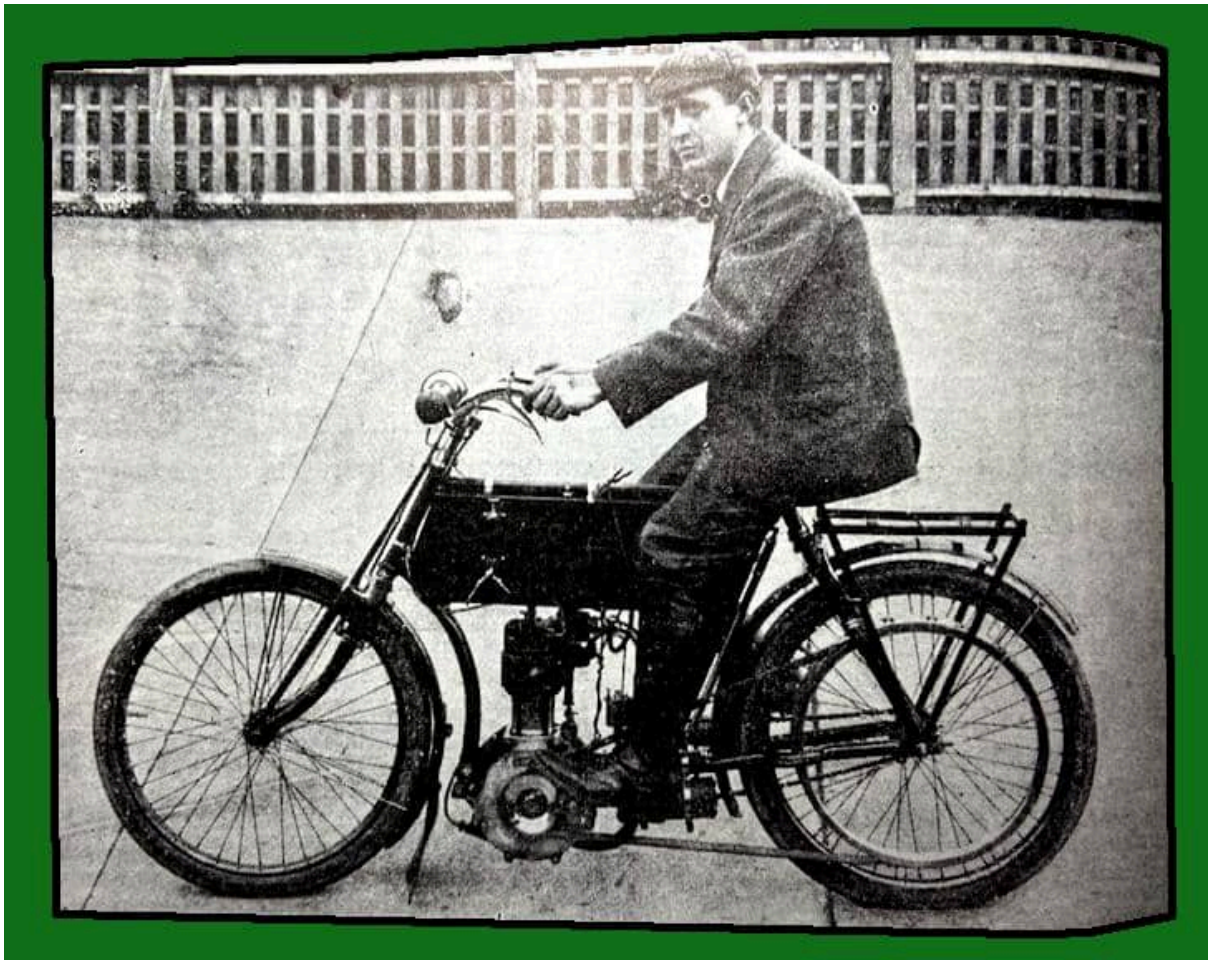
screw and lock nut. The valve is driven by a separate cam of special construction. Each of the cams drives a lever, and this operates the valve lifter. Special attention has been paid to the contact make-and-break so as to obviate wear and tear and ignition troubles. All the outside case bearings are in blind bushes. The working parts are well designed, proportionate, and of spring steel whilst nickel steel is employed on such parts as work under heavy strains. The □ðrm also makes a speciality of what is known as gauge limit work, which provides the certainty of any part so made being certain to work without □ðtting. A very neat little screwdriver is amongst their exhibits, as well as machines for cutting threads, four-spindle drilling machines, the large gear, etc, the □ðrm making a speciality in shell fuses fox the British Government. **Chase Motors**, Anerley, London SE. This □ðrm shows a stand full of motorcycles



"Neat Screwdriver Shown by White & Poppe."

varying in power from the 2½hp ordinary road machine to the 3½hp special racer, although the latter size is equally adaptable to the former class. The engine is either the Ariel or the MMC, according to the size, the latter being for the 2¾hp and 3½hp, whilst the former is for the 2½ and 3hp. The MMC engine is so designed as to take the place of the down diagonal of the frame, being securely bolted into it within a pair of segments which are attached to the front and back members, thus allowing for the easy withdrawal of the engine. The engine is placed as far

forward as possible, so as to allow of a long belt drive, a point often forgotten in the life of the belt; at the same time, this forward position produces a much longer wheel base, minimising side-slip and maintaining great steadiness in the machine. The Longuemare carburetter with throttle is □ötted. The levers for advance sparking and the throttle are mounted on cone bearings with a Thackeray spring washer on each; thus a free but rigid lever is provided. Bowden wires operate the valve lifter and the back brake, and the main wiring is concealed as much as possible so as to prevent moisture getting to wires, or other damage. The combination tank provides for 1½ gallons of petrol, one pint of lubricating oil, two P&R accumulators, and either a trembler or ordinary coil, at purchasers' option. The history of the Chase family is so well



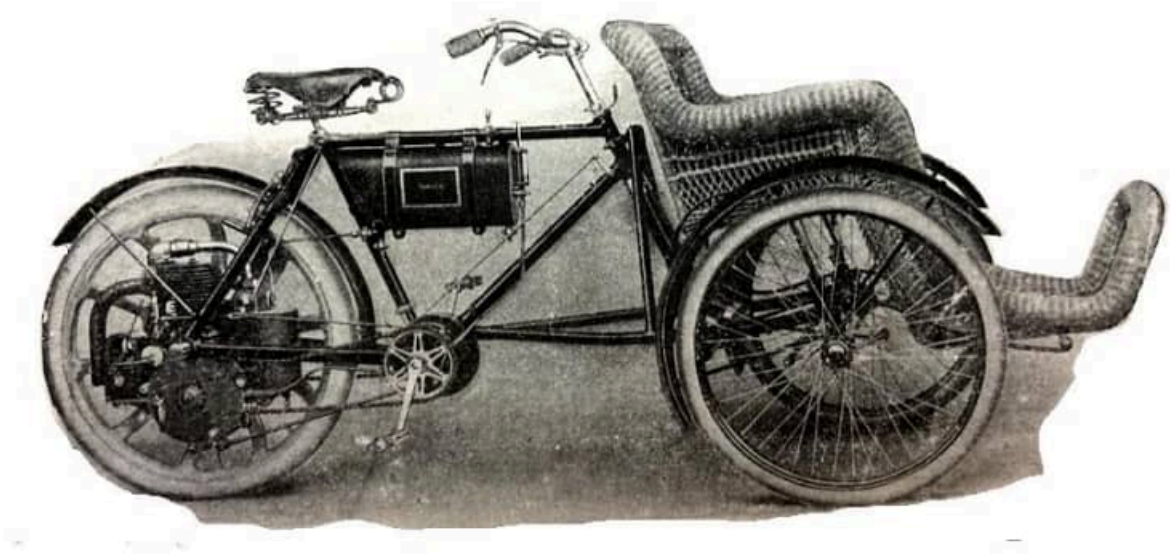
"The Chase Motor-Bicycle."

known that the public can depend upon every point likely to occur in the design of a motorcycle being carefully thought out by them. It will be remembered that the Chase secured the Auto-Cycle Club's □örst-class certi□öcate in the 1903 Trials.

Chase also exhibit specimens of their patent Flexo raw hide belt, which is claimed to be superior to all other forms cf V-belt. The belting is composed of □öve pliesofraw hide, cemented together, and sewn with copper. It can also be supplied as a □öat belt, both single and double ply.

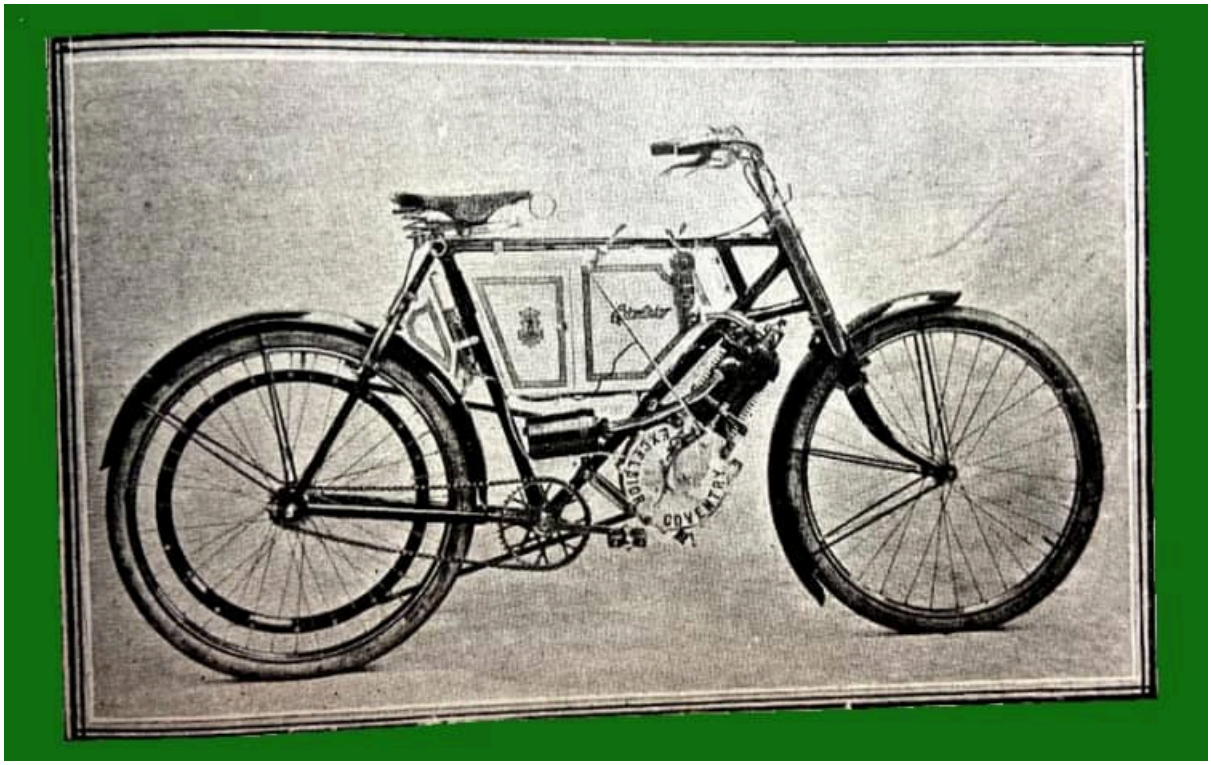
The **Whippet Motor and Cycle Co**, Clapham Junction, have a well-□önished fore-carriage, □ötted with 3½hp Aster engine. The transmission is by belt, and carburetter is a Longuemare type. A novelty is a sight feed lubricator for the motor. This machine has the well-known Whippet two-speed pedal gear □ötted. A motor-bicycle is also shown. This has a 2hp FN motor, □öttedvertically in a loop frame: a Longuemare carburetter and sight feed lubricator are used, and a petrol tank of extra large capacity is a special feature. Dunlop tyres are □ötted, and a noticeable detail is the

two-speed pedal gear □ðttedinagear-case. Thisgear is actuated by a lever mounted alongside the down tube. **AnglianMotorCo**, Beccles. Threewell-constructed belt-driven bicycles are shown here, all □ðttedwith2¾hp engines. Thearrangement of the tanks is neat and novel. **Singer and Co**, Coventry, have a splendid display of 14 motorcycles. Theleading line is the 3hp fore-carriage with chain drive. Thegear driven machine is still in considerable demand for tricycles and tri-voiturettes The3hp chain-driven bicycle is shown for the □ðrsttime;this has the □ðrm's very successful system of transmission. Thevery latest development in Singersis the belt driver 3hp engine □ðttedinaspecial cradle in the centre of the frame. This has magneto-electric ignition, spray carburetter, tank arranged parallel



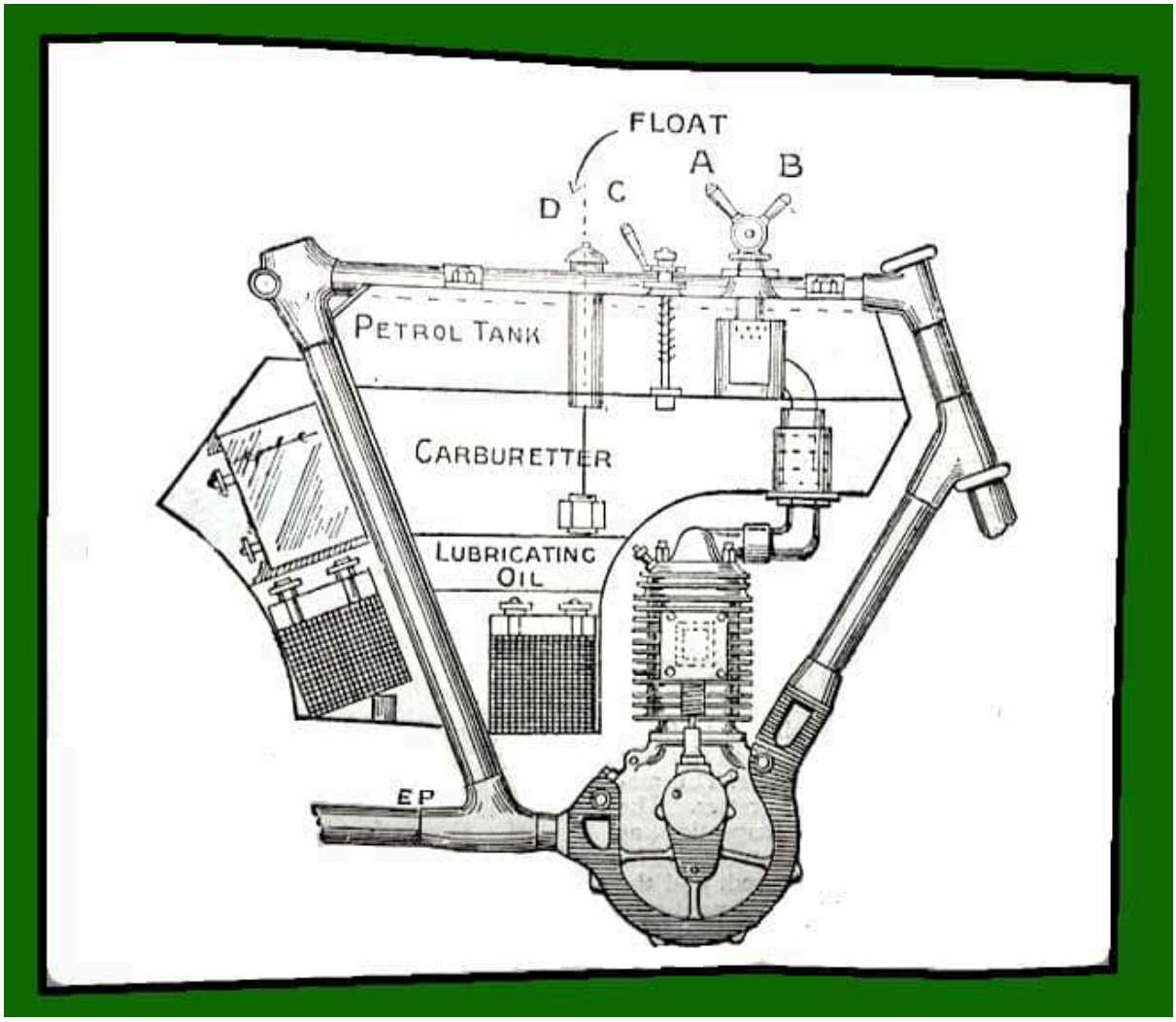
"The 3hp Singer □ðttedwitha fore-carriage."

with the top tube, and a very special feature is a starting clutch for the engine.Thecontrol is eīected by a single lever combined throttle regulator and exhaust valve lifter. Thepetrol capacity is equal to about 150 miles' running. Duplex front forks and a very large and eīective silencer are other excellent features. The□ðnishofthismachine is all that the most critical could desire. Theprice, with clutch, is 52 guineas, or 50 guineas without it. **JamesPrice & Sons**, Fitzroy Place, Euston Road, London NW are showing their well-known Chez Lui enamels in an endless variety of colours. A speciality is an aluminium enamel for tanks, bonnets and radiators, and a transparent enamel for plated parts. **Bayliss, Thomas & Co**, Coventry, have an exceedingly □ðnedisplayofExcelsior motorcycles on one of the largest stands in the exhibition. The1904 Excelsior presents many novel features. Thecompany are now making their own engines under

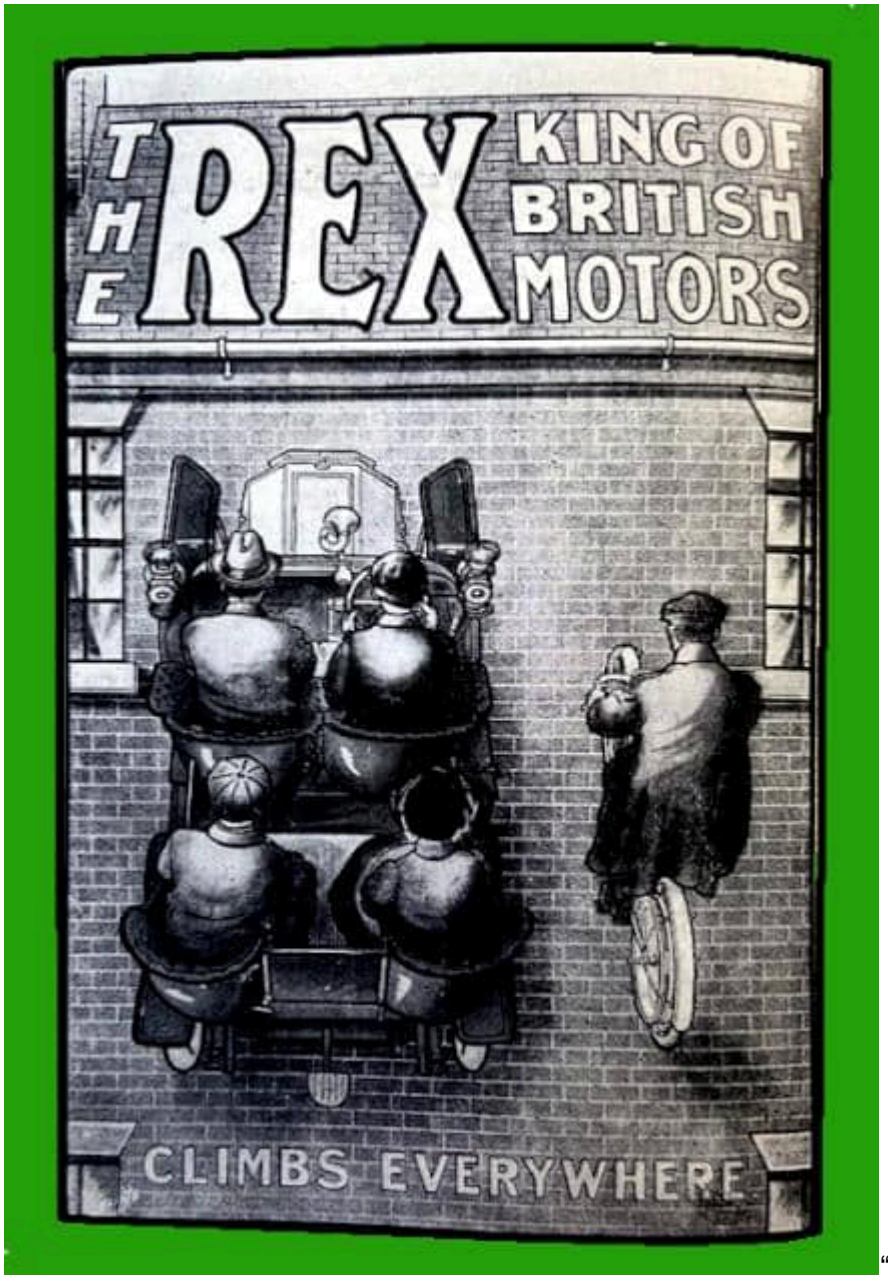


"The 1904 Excelsior Motor-bicycle."

licence from De Dion's, adopting the standards of that □ðrminthecase of the two larger sizes. Theseare the 4hp water-cooled engine for driving fore-carriages. and the 3hp air-cooled engine for motor-bicycles, etc. A 2½hp engine is also being made. Theleading line in Excelsior motorcycles is □ðttedwiththe 3hp engine, driving through a Lincona belt. We notice that the gear is now a shade lower than was the case last season. A very capacious tank is employed, taking about 2¼gallons of petrol. Either the surface or spray carburetter is supplied, the former having a large surface area and feeding through a large mixture tap, the engine is never starved of explosive gas. Thespray carburetter recommended as an alternative is the Longuemare, the adjusting levers of which are most conveniently placed. A wipe contact and trembler coil are being used, the contact being frictionless except at the moment of completing the circuit. Two Lithanode accumulators are used, the interrupter plug being employed to put one or other into the circuit. Special attention has been paid to brakes, and the new pattern of exhaust-lifting lever is particularly handy. With Clincher tyres, the 3hp Excelsior sells at 50 guineas. Thesame machine, □ðttedwiththe 2½hp engine, sells at £45. The **Rex Motor Manufacturing Co** , Coventry, make a really imposing display of motorcycles. No less than 50 samples of their 3¼hp



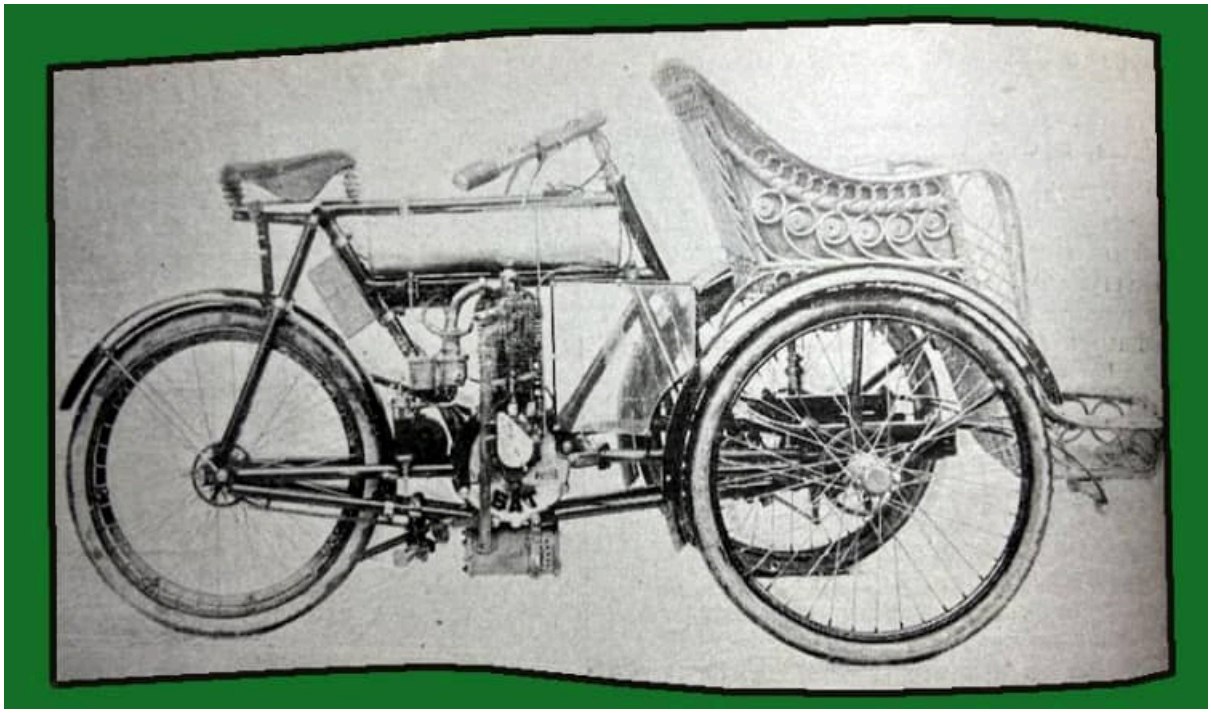
"Sectional view of the Tank and Carburetter of the Rex Motor-bicycle."



“A striking poster used by the RexMotor Manufacturing Co. It attracted great attention at the recent Shows.”

vibrationless motor-bicycles are shown on a stand occupying 100ft of space, the largest in the whole exhibition. Their high grade character is well-known, and their popularity is proved when we state that the □ðrm have to employ an all-night staī in order to cope with the demand for them. The Rex system of silencing the exhaust is eīected by the casting of an extra chamber on the side of the cylinder, from which the burnt gases issue through three baīle plates. This device does away with all back pressure, and there is no undue heating or loss of power. Further than this, the breaking up of the exhaust gases at the moment of expansion makes the silencer more eīective. Another interesting innovation is an air passage between the exhaust chamber and cylinder: this gives a greater cooling area and it is claimed that it entirely prevents overheating. The coil and accumulator are now carried in the rear, thus reserving a capacious petrol and oil supply in the main tank. There is also space for a spare accumulator. The engine is now secured to the frame by only three bolts to a registered design of cradle. The carburetter is still of the surface type, but larger vaporising space is provided, the result being that a good

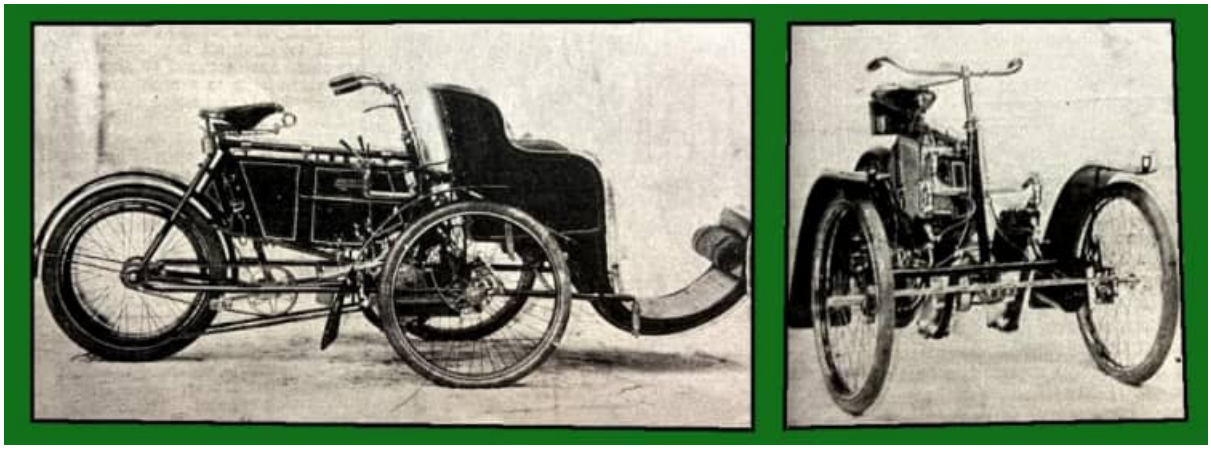
mixture is assured, even if the petrol be above the ordinary density. **The Adaptable Motor and Sporting Garment**, Westbourne Park. The garment here displayed consists of the following combination which can be worn together, or, if desired, separately: Coat and waistcoat, frock coat, overcoat, knickers and driving apron. These articles of clothing are made of excellent material and are most suitable for automobilists. The prices range from £4 4s upwards. **John J Plater & Sons**, Birmingham. This stand is occupied by various carriage bodies suitable for attaching to motorcycles as trailers and fore-cars. All are of handsome design and mostly of the wicker type, but a coach-built wood fore-car with a circular back, painted and upholstered in green, is particularly attractive and comfortable looking. The **Bat Motor Co**, Penge, London, SE, have one of the largest displays of



"The Bat with Fore-carriage."

motor-bicycles in the Show, there being 24 machines staged. The No 1 machine is □ðttedwith mechanically operated inlet valve, motor arranged vertically, trembler coil, Longuemare carburetter, new combined oil pump and reservoir, and a patent switch and brake lever device. The No 2 machine is made on racing lines, but suitable for the road. This has automatic valves, and the new Bat carburetter is □ðtted. It is controlled by a single lever □ðttedinfront of the saddle. The spring frame machine will prove an interesting model. It is □ðttedwithanew rim brake, applied by the thumb, and also a new foot brake. This machine also has the Bat carburetter. The fore-carriage has numerous special features. The frame is particularly well stayed, and the band brake gear is very well thought out. It is actuated by a foot lever, giving great power, and a clip is mounted on the handlebar for holding the exhaust valve up. The motor is a 3¼hp, □ðttedwiththe □ðrm'spatentpulley, as are all their machines. The side-car is a very special line. The attachment is exceedingly strong and simple, and the motor □ðttedis3¼hpand a special point is made of the fact that. the machine can be driven by the passenger when alone in the car. The □ðrmareturning out a Special motor-bicycle, with many excellent features. The engine has a mechanically operated valve, new Longuemare carburetter with automatic air regulator, exhaust box, with a cut-out for hill climbing, and duplex forks, with a new system of adjusting the head. The coil is a BasséeMichel, and it is note-worthy that all the accessories about the Bat machine are of the

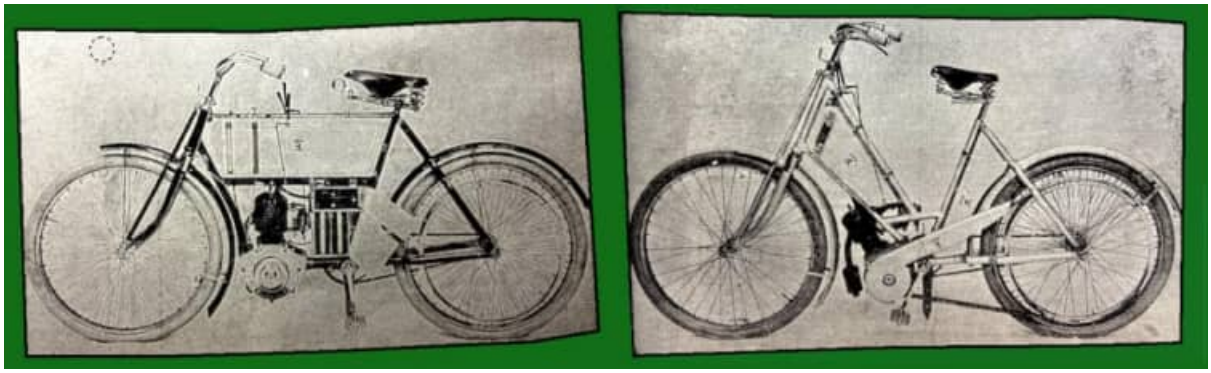
highest quality. There being no pedal chain on the Bat machine, the belt can he readily adjusted by draw bolts on the rear axle. The handlebars □ðttedareofnew shape and heavier tubing. This exhibit is bristling with good features, particularly the company's new stand, lifting either wheel at will, and also a new air pressure lubricating arrangement. **Quadrant Cycle Co**., Sheepcote Street, Birmingham,



"The Quadrant with Fore-carriage attached." (Right)"Quadrant with Fore-car entirely removed, showing two engines."

have nine motor cycles representing the □ðrm'slatestpatterns The motors □ðttedare2and 3hp. A special feature is a new spring fork which looks a most eīective device for overcoming vibration. The front wheel axle is suspended on a spiral spring at each end and the amount of 'give' when pressure is applied to the handlebars is very noticeable.. This speciality in itself should render the Quadrant machines more popular than ever. The combined spring fork and anti-vibrating spring saddle should give quite luxurious riding. The make-and-break ignition gear is another strong point with Quadrants—its special feature is that self-adjusting. The lubricating device for the motor has proved very successful during the past season: it is impossible for leakage of oil to occur from the crank case, owing to the pressure being relieved through a small hole in the centre of the axle—apalace where none of the oil can remain, as it is thrown away from the centre by centrifugal force. An exhaust valve lifter is now □ðttedasan option. The □ðrm make a special feature of their surface carburetter. The new tri-car has two motors of 2½hp, which can be used separately or together by means of an ingenious pedal clutch: the fore-carriage is hung on spiral springs which insulate it from vibration in a most eīective manner. The transmission is by V-belt; the control is the □ðrm'swell-triedsinglelever, with throttle in addition. There are three hub brakes □ðtted. Thepetrol capacity is equal to 130 miles and the accumulators are extra large: arranged on the pedal clutch gear is a cleverly designed contact to break the ignition circuit when one engine only is used. It will be observed that very large side wings are □ðtted,ontheextremities of which are attached the lamp brackets. The body is readily detachable, making a handy tricycle of the machine. The general □ðnishofthismachine is excellent. The price is £97 l0s. **CR Base**, High Holborn, London, WC, had a very attractive exhibit of all classes of clothing for motorists in fur and leather. Also a new driving apron named the 'Kezi□ðt'—acapitalarticle which should appeal to the motorist—and some good lines in caps and gloves for motorcyclists. **Collier & Sons**, Plumstead. The Matchless Motorcycle was shown on this stand, provided with a 2¾hp De Dion or MMC motor, □ðtteddiagonallyto a specially designed frame. It presents a very powerful appearance, and its capabilities have been well proved during the past season. All the controlling levers are □ðttedwith□ðne-toothedratchetsso as to prevent them slipping by vibration. A two-way switch, two 20amp armoured P&R

accumulators, and a De Dion coil and De Dion □ðoat-feedcarburetter,with a tank to hold 1½ gallons of petrol are also □ðtted.Aspecialityis an automatic swing crank, which allows one of the cranks to be back-pedalled to the same position as the other, the releasingof the pressure on the crank allowing it to resume its proper position. This □ðrmalsoshowedа very neat belt punch, capable of cutting a rivet out. It is well made in silver steel so as to prevent undue wear. **The Rona Chemical Company**, Bradford showed Rona Motor Lubricant. This is a special preparation for bearingsand chains, and is not aīected by heat. Severalvarieties of rubber preparations were also shown. **The Booth Motor Syndicate**, Putney exhibited the Bramley motor-bicycle, □ðttedwitha 2¾hp motor built



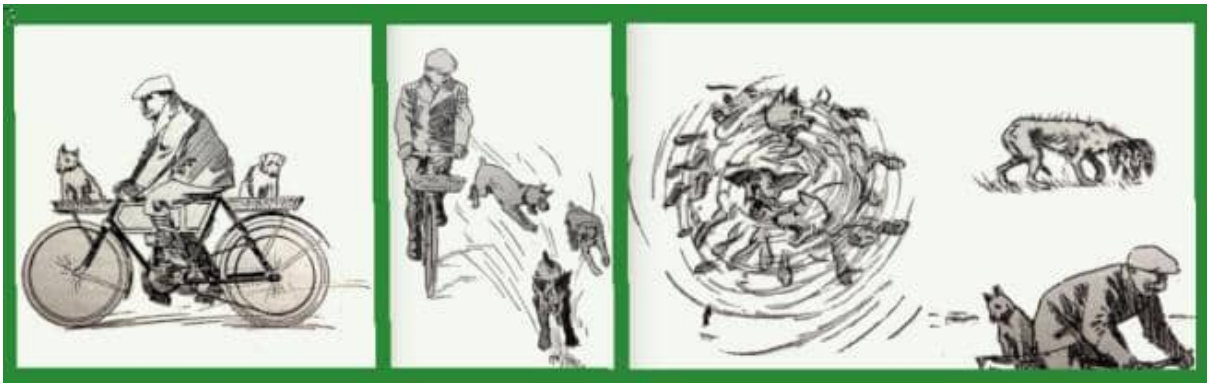
"The Bramley Motor-Bicycle." (Right)"The Bramley Lady's Motor-Bicycle."

into the frame. It is provided with mechanical inlet valve and trembler coil ignition. The carburetter is a Longuemare,and transmission is by V-belt. Gaugeglasses indicate the quantity of petrol and oil in the tanks. Two accumulators are □ðtted,providedwith a two-way switch, and all wiring is, as far as possible, concealed in the accumulator box. Theoil pump is □ðttedinside the tank. Thefree-wheel used is a special form, made as part of the hub. Tworim brakes and duplex forks are □ðtted.The□ðrmmake□ðvetypesofmachines, including a 3½hp fore-carriage and a 2hp lady's machine which presented a very neat and compact appearance. We understand that they have already booked several orders for these machines, including one from that well-known lady motorcyclist, Mrs Kennard. The **Wearwell Motor Co**, Pountney Street, Wolverhampton, are adopting the name of 'Wolf' for their motorcycles. Theyhad an extensive exhibit of motor-bicycles, several being □ðttedwithfore-carriages. One of these has a 3¼hp water-cooled engine,chain drive and free clutch ; this makes quite a little car, and is splendid value for the £75 asked. Thestandard motor-bicycle has a 3¼hp air-cooled engine completely controlled from the handlebar by means of Bowdenwires: the application of the back wheel rim brake cuts oī the current; the throttle is worked by a twisting handle grip. Ignition is by the usual coil and accumulator system. TheWolf fore-carriage is specially easyof attachment and detachment; it is generallyadmitted that there was no better type exhibited at either Show. The **See Motor Car Supply Co**, Oxford Street, London, W. TheLamaudière motor-bicycle which competed in the last Bordeaux-Parisrace was on view during the Show. TheLamaudière has a 2½hp engine situated centrally in the cycle frame—in fact the engine takes the place of the usual down tube. An out-side □ðy-wheelisused,and a free engine is obtained by lowering an adjustable jockey pulley (running on balls) and allowing the belt to slip. Also displayed was the Samson-Hutchinson non-slipping puncture proof tread for motorcycles and cars: this is composed of three layers of specially prepared chrome leather, studded with □ðatheadedsteel rivets.

"Jottings at the opening day of the show."

"AN INTERESTINGFIGUREatthe Shows was Mr JBDunlop, the inventor of the tyre bearing his name. Mr. Dunlop, who is a venerable looking gentleman, appears to have lost very little of his inventive faculties. At any rate, he informed us that he was busily engagedupon an improved form of carburetter for cars and motorcycles, and that he had also designed a new silencer, in which, according to Mr Dunlop, explosions cannot possibly take place."

THEREWERE357motorcycles at the Stanley show 247 at the Crystal Palace show, and about 10,000 in Britain.



L-R:"'Fore' and 'Aft' are two smart bull terriers, seated on the front and back carriers of the motor." "In the event of a cur attacking the motor, 'Fore' and 'Aft' are slipped…""…andquickly dispose of the aggressor."

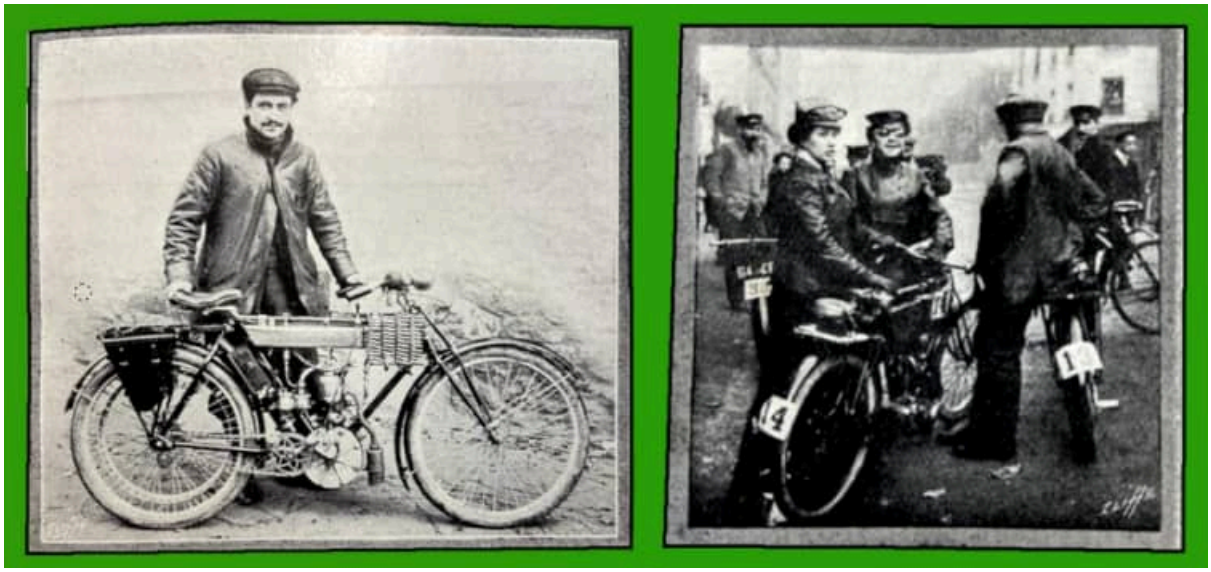
Meanwhile, in the USofAMiller was making motor cycles and, as pictured, tadpole three-wheelers.

"THE 1,000KM (620 MILES)RELIABILITYRUNformotorcycles promoted by the Motorcycle Club of Francebegan last Tuesday(November l0th) and continued throughout the week. Thetrial consisted of six daily runs from Paristo some outlying provincial town and back, each day's day's run being diīerent and the daily mileage varyingfrom 120 to 70 miles. Thirty-six motorcycles were entered. Theabsence of some of the best known French machines, such as the Griīon and the Peugeotwhich did so well in the recent hill climbing tests, was a matter for regret; but with representatives of the Moto-Cardan, Werner, GeorgiaKnap, Walter, Iris, and that most recent addition to the ranks of motorcycles, the Gobron-Minerva, plenty of keenrivalry was anticipated. A feature of the event which will be interesting as a novelty to the English motorist was the presence of a lady competitor, Miss JeanneHerveux, on a Walter cycle. Competing machines were rangedin two classes according to cylindrical capacity—(1) a quarter of a litre; (2) one-third of a litre. **First day: Paris to Chartres and back—113 miles.** Weather □ðneandroadsin fairly good order. Of the 36 competitors who started 26 completed the run inside oīicial time, failure to do this involvingwithdrawal from the competition; the withdrawals on this day were chie□ðyduetoignition troubles. Several falls, none serious, were recorded. Miss Herne came to grief at Versailles over an ungallant dog, but the fair moteuse soon remounted and completed the run in limit time. Breuil on a machine of the samename also met with canine troubles. Knap,on the No 1 Knap, collided with a milk cart; and Anujard ran over a paving stone left on the road by a waggoner. Kuhling, on the Gobron-Minerva, attracted considerable attention, this ma-chine running very sweetly and

quietly. **Second day: Paris to Gaillon and back —109miles.** Fog and rain, roads muddy. Twenty-six started and 20 □ðnished,ignitiontroubles again being responsible for the loss of time which caused the withdrawal of the unsuccessful six, in some cases accumulators were found to have run out. Miss Herveux failed to arrive in time, as also did both of the Moto-Cardan machines and one of the Knaps. Side-slips were frequent, a few tyres

Holley (Bruneau). (Right) Coudere (Lurquin de Coudere).

punctured, and a belt or two snapped, but there was no accident worth recording. The competitors were received everywhere with acclamation by the public. **Third day: Paris to Evreux and back—120miles.** This day's run was the longest of the trials; nevertheless of 19 competitors who started only one failed to get back within schedule limit. The committee had previously decided that any competitor who succeeded in getting back to Paris, although outside the prescribed time, might start unoīicially on the following day. Miss Herveux's failure on the second day was due to the shocking state of the roads near Gaillon. A thin drizzle fell all Thursday, increasing the chances of accident considerably. The number of mishaps, chie□ðy side-slips, which befell the in machines was 66. The Gobron-Minerva, the two Werners, and one of the Knaps were still doing well at the end of the day's run. **Fourth day: Paris to Nonancourt and back—112 miles.** In sunny weather 18 competitors started and 17 □ðnished within schedule limit. A successful, but uneventful run, no mishaps being recorded. At Houdan, one-third of the way back on the return journey, a surprise brake trial took place, most of the competitors coming successfully through this. Large crowds of spectators awaited the arrival of the motorcycles in the controls. The only competitor to fail was Faron on a Lamaudiere machine. **Fifth day: Paris to Beauvais (100 miles).** Seventeen started, cf which 16 □ðnished,the unsuccessful machine being the No 1 Werner piloted by Jovelet. Another bad day, cold and fog in the early morning, and rain—ending in a heavy downpour—on the return journey. We regret to say that in some way our photographs of this event have miscarried, as at the time of closing for press they had not arrived.—Ed."

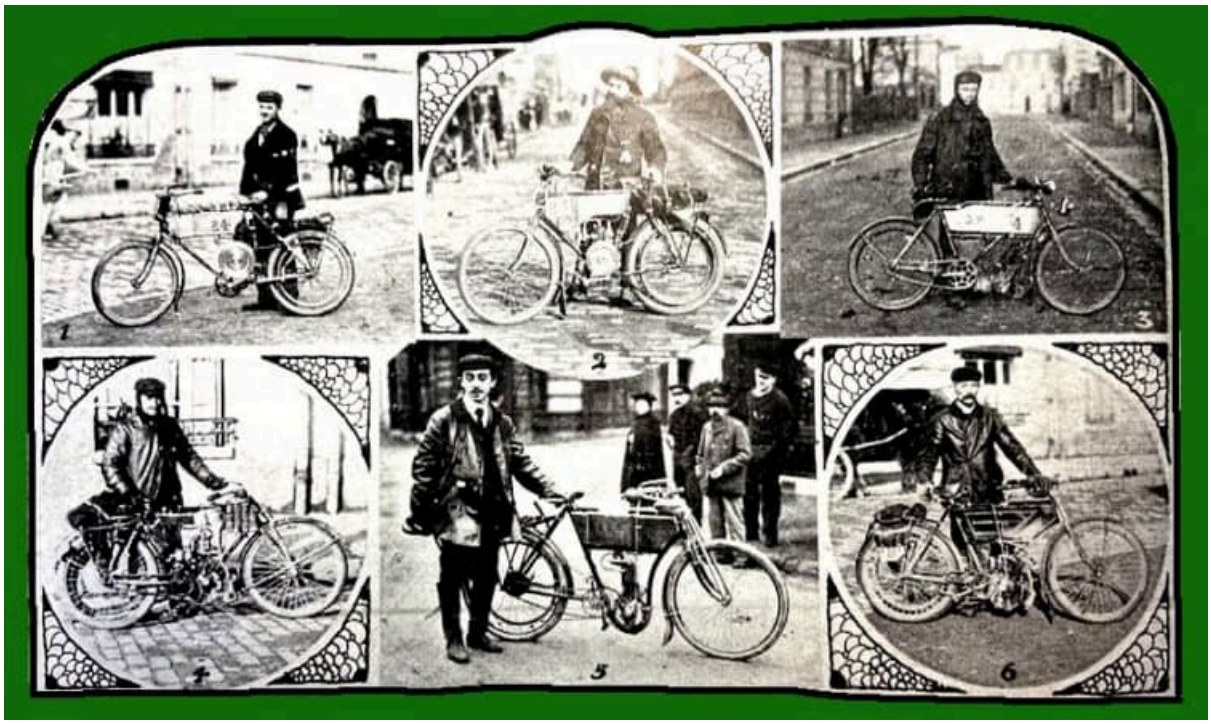


“Paillard with the Paillard water-cooled motor bicycle. Note the coil radiators in front.” (Right) “French lady motor cyclists in the 1,000km Trial.”

That report of the 1,000km trial came from* The Motor*; this review of the event appeared in* The Motor Cycle*…

“THE FRENCH 1,000 KM TRIALS. On Sunday afternoon, November 15th, 14 motor cyclists arrived at the garage in the Rue de Villiers at Neuilly. They came in one by one, bedraggled and bespattered, and some of them were scarcely distinguishable through the coating of mud they picked up by succumbing too easily to the laws of gravitation. They looked as if they had done the 1,000km at one stretch instead of in six daily instalments. One of them declared that it was the hardest test he had ever gone through. A run of a little more than 100 miles a day for a week at a fair touring speed, with compulsory stoppages for meals, is not of itself particularly trying to the competitors, and at any other time of the year it would have proved a pleasant experience than otherwise, but the organising club purposely held the trials in November so that the machines should be tested under the most unfavourable conditions possible. The idea was to leave no chance to bicycles which did not ful□ðl all the conditions of reliability, and at the same time convince the public that the touring machine is capable of being used in all weathers. These results have certainly been attained. The public have marvelled at the behaviour of the little motors, which have carried the competitors over roads that seemed to be almost impassable for a single-track machine; but if the conditions of the trials have made the performances of the successful bicycles all the more meritorious, they have meant very hard lines for some of the competitors. On the □ðrst day no fewer than 10 out of 36 of the motor bicycles starting failed to return before the control closed. This was not due to the weather or to the state of the roads, but to the fact that a good many of the machines were not properly prepared for the test. So much time was lost on the way through faulty ignition, or in seeking petrol which the competitors had not provided for, that they did not arrive until the evening. In most cases there was nothing the matter with the machines. A limit of time, nevertheless, had to be □ðxed, and if they returned after the closing of the control they could not complain of being disquali□ðed. The only consolation they had was in being allowed to continue on the following days, when their times were taken, but, of course, they were not included in the oīicial placings. The second day saw a complete change in the weather, with drizzling rain and fog, which made the roads so slippery that it was almost impossible to ride on the granite setts. Several of the competitors came down, and others had no end of trouble with their ignition gear. Seven more

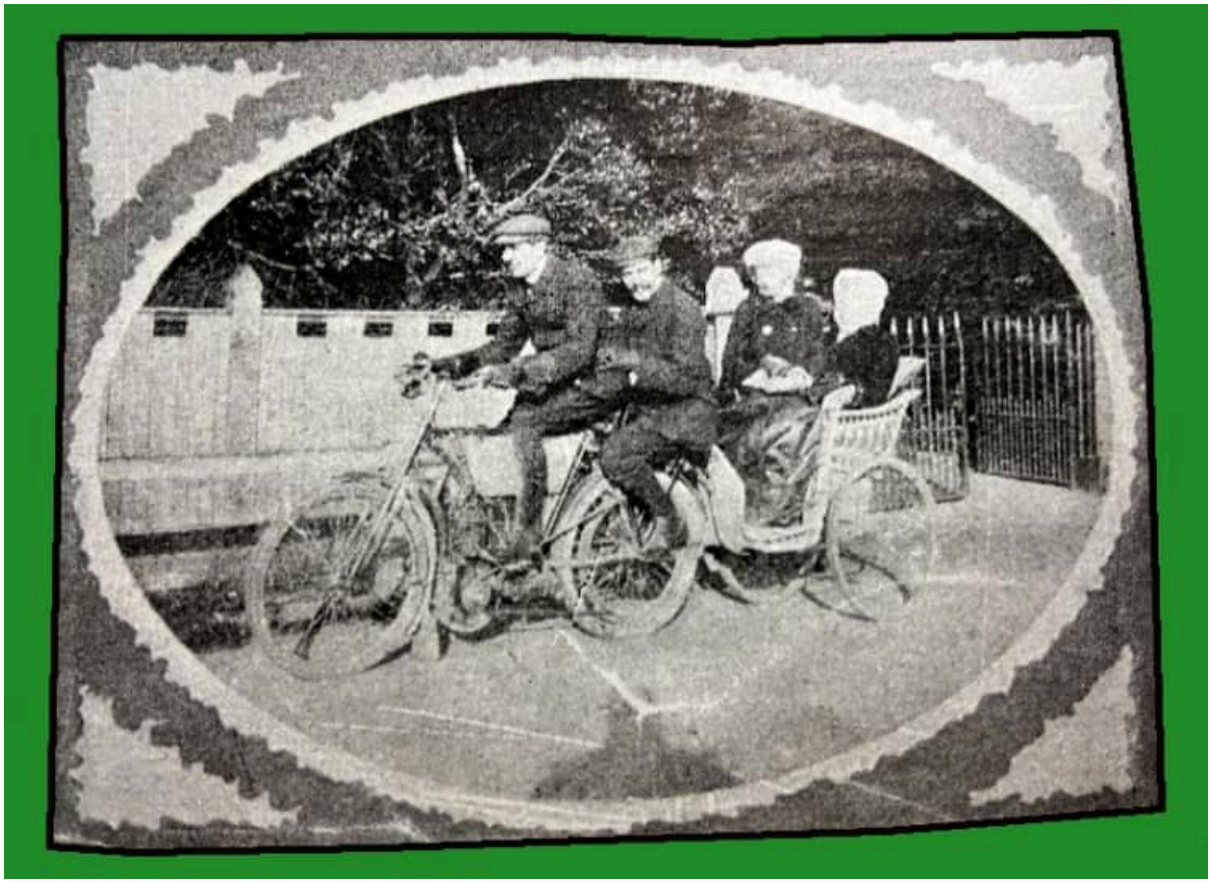
unfortunates retired from the contest, utterly disheartened by the weather and their bad luck, and some of them undoubtedly threw up the sponge because the monotony of riding through the rain-sodden country was more than they could stand. On the third day the conditions improved a little, and not a single one dropped out, but on Friday a competitor failed to return in time, so that only 18 started on Saturday morning, or just half the original number of competitors. They had to run to Beauvais and back."



"The Motor-Bicycle Trials in France. Some of the Machines which Competed. (L-R Top) Laumaudiere, Mauxion, Chantemede. (L-R Bottom) Paillard, Bonnet, Gobron-Minerva."

"THOSE PEOPLE WHO STILL HOLD BACK from participating in the pleasures of motor-cycling because they imagine the motor-bicycle is still an experimental machine, will be interested in the riding record of Mr THW Fox, of Wimbledon. This young gentleman has ridden a Rex motor-bicycle 6,453 miles in a year and his rides include the following: 86 miles non-stop in 2hr 47min; 120 miles with two stops for refreshments; 300 miles with a stop at York for the night—16 hours' actual riding time. Mr Fox tells us he has ridden over 100 miles on a gallon of petrol. He speaks in the highest terms of his machine, which he was overhauling at the time of writing."

"LADIES WHO TAKE TO MOTORCYCLING evince no lack of enthusiasm for the pastime. A lady who recently purchased a Singer motor-bicycle waxes eloquent in truly feminine fashion in the following extract from a letter which she has addressed to the □ðrm: 'I reached————all right, and had no mishaps. The motor simply □ðew. Part of the way the fog was dense, but the roads improved. The motor con□ðed in me and told me why she would not start at ————. Temper, at being left out in the cold, while we went and had such an excellent tea. I comforted her, gave her some nice thick oil, and she has promised to be good! I cleansed her before (8.30) breakfast this morning, so you see I was not a bit tired after our glorious ride. I really must retard the spark and turn oī the petrol.'"

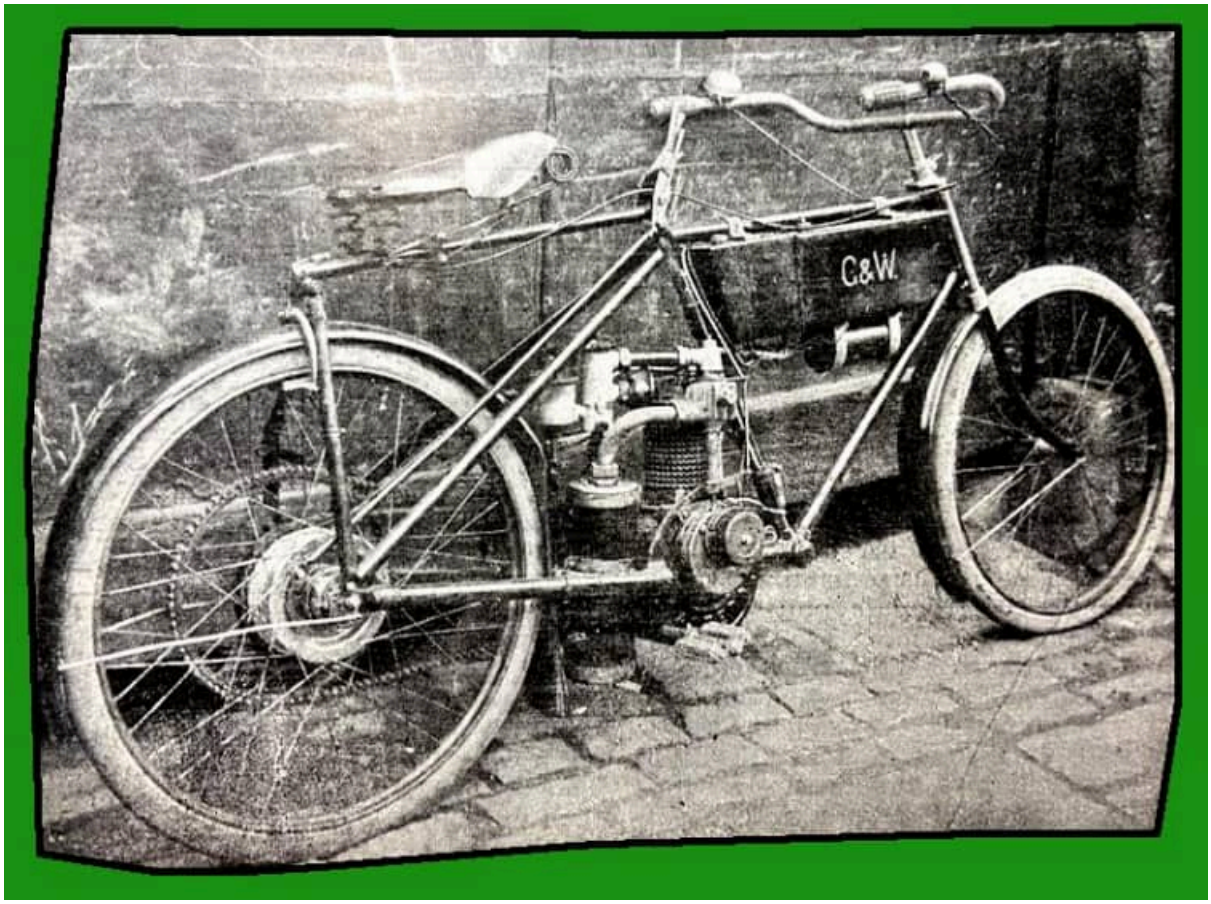


"A full load"

"IN AN AMUSING CASE AT HALIFAX in which a joiner sued a motorcyclist for injuries sustained by being knocked down by the motorcycle, the judge requested the defendant to blow his horn outside the court. On his return his honour remarked: 'Isn't it a public nuisance to make that awful row?' to which defending counsel retorted: 'If you don't make a row there's a row because you don't.' Finally, the judge decided that the motorcyclist, so far from showing negligence, had shown every precaution that he could, and gave judgment for him accordingly."

"A CURIOUSLY WORDED CHARGE was brought the other day against a motorcyclist in Scotland. The actual oīence which he was alleged to have committed was that of recklessly driving into a horse and van between nine and ten o'clock at night: be was charged with having 'failed to keep a motor-bicycle on which he was riding to the left or near side of the road, whereby it ran with great speed, etc.' It is not generally considered a legal oīence to ride on the right-hand side of the road, although doing so would, of course, tell against one in the event of an accident. In the case referred to above, the cyclist successfully pleaded that the accident was caused by the absence of any lights on the van."

"THE MACHINE MADE BY Messrs Guy and Wheeler, South John Street, Liverpool, has a frame of unusual length, the wheelbase being no less than 5ft 1in. The motor, a 3hp air-cooled Aster, is placed behind the bottom bracket. No pedals are □ðtted. Petrol capacity is two gallons, and two accumulators are □ðtted. A new form of wiring is □ðtted which gives a considerable increase of voltage on that usually obtained. This ignition makes the engine much more eīicient. A large type of Longuemare carburetter is used. The silencer is very large, with a cut-out for obtaining full power when required. The G&W 'picrator' is □ðtted to this machine. Transmission is by chain to a hub giving two speeds and free engine, but the belt drive is also □ðtted when desired."



“The G&W Two-speed Motor-Bicycle.”

“In this invention. which is one lately patented by Mr FH Green, of 87, High Street, Cheltenham, the familiar reservoir or tank, which is usually suspended within the diamond of the bicycle frame is entirely abolished. This is done by utilising the whole of the frame tubes for the purpose

of containing the petrol or other fuel, the bicycle then having the appearance, as will be seen from our illustration, of an ordinary cycle with an engine attached. The frame is built with slightly larger tubes than usual, and in these the spirit is allowed to circulate freely through the entire set when poured in at the opening provided at the upper end of the seat-pillar. The rear mudguard being made hollow acts as a receptacle for nearly a quart of lubricating oil. A pipe from the bottom bracket is connected to the carburetter, this supplying the engine in the customary style."

"IT WILL BE AS WELL to be prepared for cold weather in the near future and to see that the carburetter is provided with a means of being kept warm, either by a connection or by-pass to the exhaust or having the carburetter kept fairly close up to the radiators. There are many machines which have a □ðtting provided to the carburetter for connecting up to the exhaust, but the necessary pipe has been omitted in building up the machine. Unless this is seen to, trouble due to freezing up of the carburetter in cold weather is. likely to result."

"THE AUTUMN IS AT HAND, winter—worse luck—is approaching, and the evenings are getting shorter and shorter. Woe betide the motorcyclist who has not an eīicient lamp! Carts with no lights, cyclists who break the law in like manner, old ladies in black dresses, dogs, and other obstacles are all terrors to him. A lamp that shows every stone in the road is an absolute necessity. Such a light is only obtainable by burning acetylene gas. Now, acetylene lamps, unfortunately, have a lesser reputation for reliability than oil lamps. All know that at Dover there is an old cannon, on which one can read the following inscription, or something like it: 'Wash me out, and keep me clean, and I'll carry a ball to Calais Green.' Now, if the users of acetylene lamps were to imagine this inscription to be written on their carbide chambers, and followed out its advice, we should hear of less trouble in the future with these excellent lamps than we have in the past."

"'WARE SHODDY. ALTHOUGH THE modern motor-bicycle is, when intelligently looked after, remarkably free from trouble, yet most people manage to □ðnd a good deal of it in one way and another; quite enough, in fact, to make the cautious buyer think twice before investing in a low-priced article. It is simply inviting disaster to expect hard work from a machine thrown together at starvation prices and decently painted over to hide its little blemishes."

"THE NOVICE, STUDYING THE working of his new motor, is rather apt to underrate the amount of work done by the exhaust cam. It looks to be such an easy job, just to lift the stem a fraction of an inch—but the lifting involves not only the overcoming of the spring resistance, it also means pushing the valve open against the full pressure of the charge just exploded in the cylinder, although, of course, this resistance is removed directly the valve opens. On the whole, it is small wonder that the stem sometimes 'loses its head' and gives up the ghost."

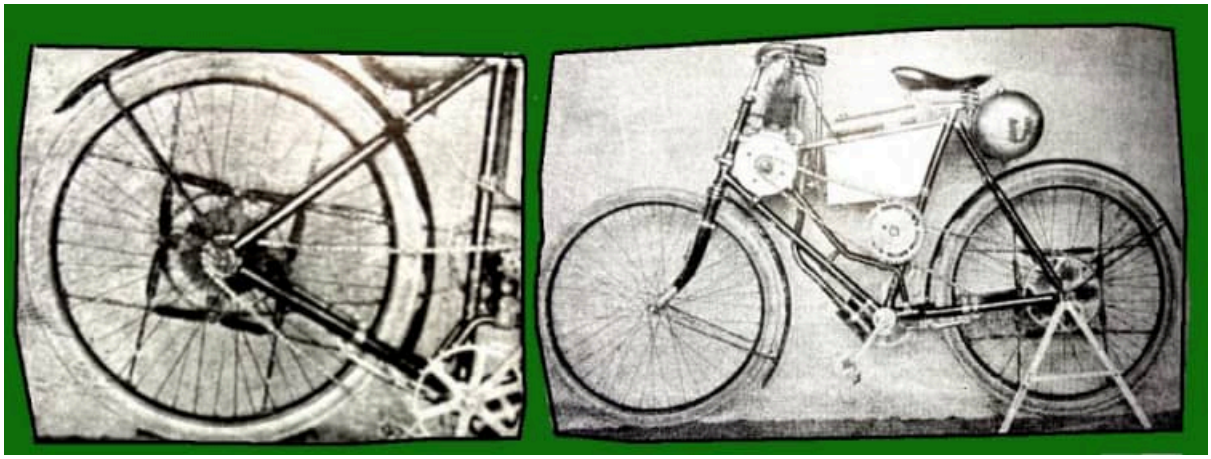
"IF ANYONE DOUBTS the necessity for wrapping the high-tension wire in such a thickness of insulation, let him □ðta piece of thinly-covered, wire in its place and, holding the wire in his hand, gently agitate the contact-breaker. If he fails to see a star-shower of surprising brilliancy he may rest assured that his accumulators have gone wrong."

"THOSE GERMAN WAR CYCLES. With reference to those marvellous motorcycles which the Evening News tells us are to be supplied to the German Army, we have been wondering how the poor private would proceed in case of a puncture. Mudguards generally get suīiciently in one's way when repairs are in progress, but a steel plate covering the wheels! spare us!—'Heinrich! für das Lieb von Himmel, geben sie mir das Sar-dine opener! der Feind ist only ein couple of miles

hinter, and-Ich can't get diese blessed inner tube!' (PS—Ifthe German is not strictly according to Wittich, one must remember the natural agitation of the punctured private.—Ed.)Asfor the battery, it appears to us to be a case of assault and battery with plenty of (as)salt. Ahem!"

"RW Stevensof Dublin. Mr Stevensclaims to be the winner of the □ðrstmotor-bicyclerace held in Ireland and the □ðrsthill-climbingcontest. Mr Steven. is in the motor trade in Dublin and handles Phoenix, Star Griīons and Jamesmotors. He is mounted on a Phoenix."

"A NOVELCHAINDRIVER.Theillustrations depict a chain-driven motor-bicycle in which the motor is mounted in a curious position behind the steering column. Theframe is somewhat on the lines of a lady's drop frame. Thetransmission is by chain oī a seven-tooth cog on the motor to a 22-tooth cog on a countershaft. This countershaft is carried on a bracket, which can be adjusted on the curved down tube. From the countershaft the drive is by another chain to a spring chain wheel mounted on a loose sleeve on the rear wheel hub. Thesprings, it will be observed, are arranged tangent fashion and are secured to arms held at eight positions on the rim. Themaker claims that this drive has proved very successful, being very elastic and absorbing the engine shocks. Theposition of the motor conduces to eīective cooling, but it is doubtful if it would be a safe machine on greasyroads, It will be noticed on the smaller illustration that the pedalling chain is carried over a cog on the countershaft for starting the motor. Themaker is JMerchant, 26, Bohemia Road, St Leonard's-on-Sea."

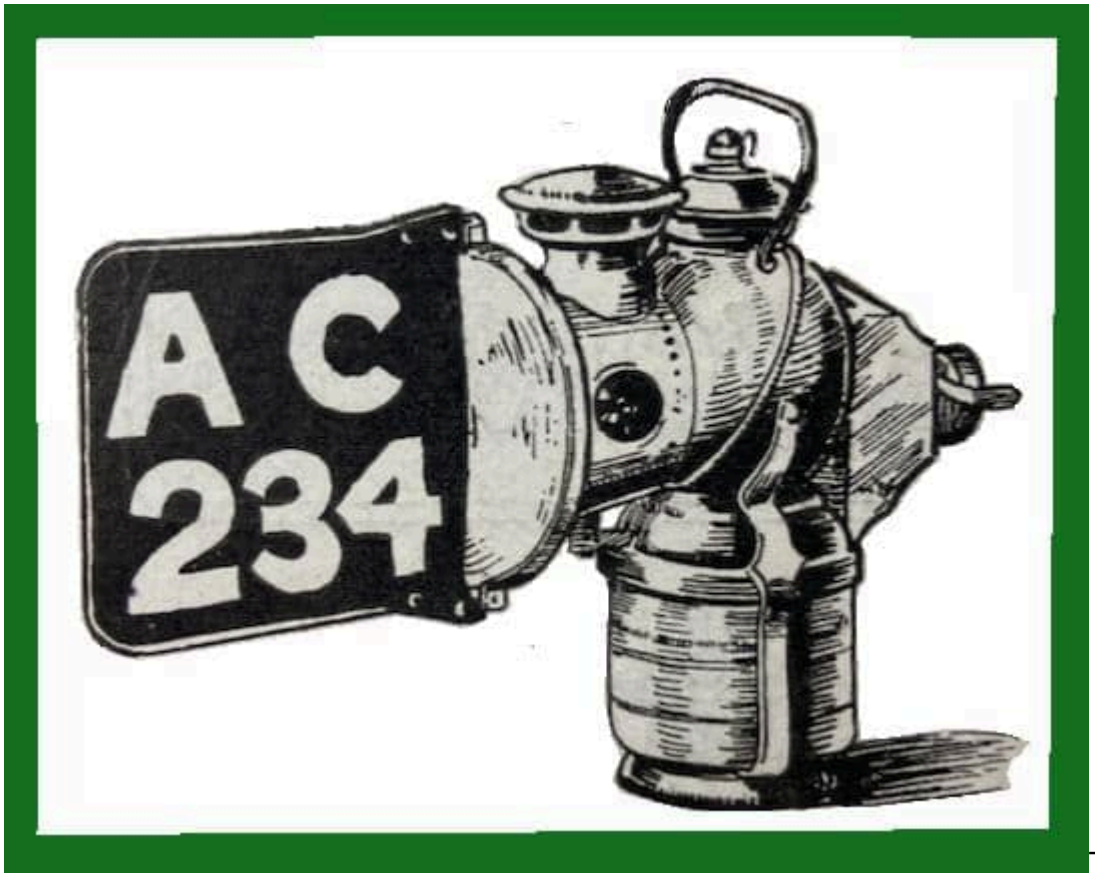


"Showing tangent springs of Mr Marchant's Motor-Bicycle." (Right)"Novel Chain-drive Motor-Bicycle described above."

"THE LOCAL GOVERNMENT BOARD'S new series of regulations under the Act of 1903 comes into force on January 1st next. A motorist has new duties imposed upon him by these, regulations but it cannot be said that they are onerous. There are three, matters for him to attend to: 1. To take out a driving licence. 2. To register his car or motorcycle. 3. To pay the tax to the Inland Revenue. The licence to drive must be procured from the council in whose jurisdiction the applicant resides, but a car or cycle may be registered with any authority. A remittance most accompany the applications, the sum being as follows: For registration of a car, £1; for registration of a motorcycle, 5s; for driving licence, 5s. The driving licence remains in force for 12 months. The registration of a motor vehicle holds good until it be cancelled. Each vehicle owned by a motorist most be separately registered and a fee paid for each—we have come across persons who laboured under the impression that they had but to register one vehicle and get a set of numbers, and then use them on any car or cycle they pleased."

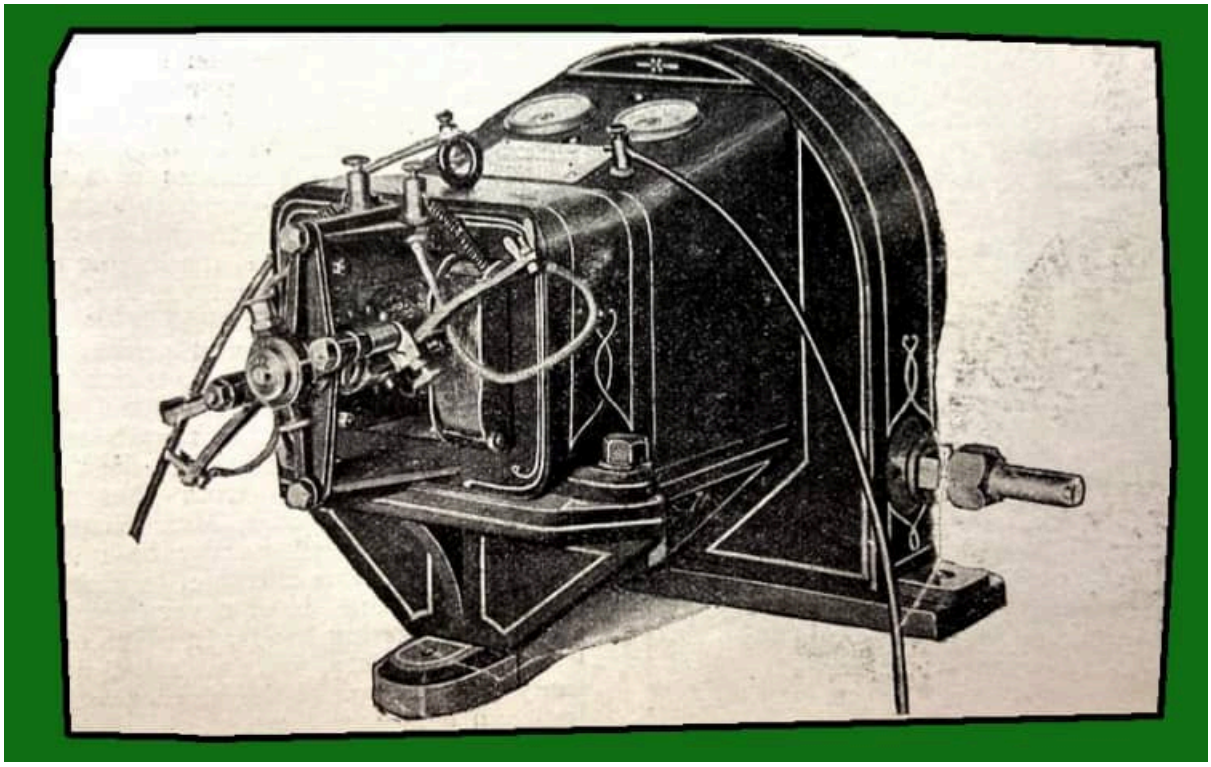
"MOTORCYCLISTS SECURE FAIR TREATMENT. Motorcyclists may congratulate themselves upon the moderate treatment which has been extended to them by the Local Government Board. If the whole of the concessions originally asked for on behalf of motorcyclists have not been secured, the only exceptions are in those cases where the Board has made it clear that it had not the power to do as was desired by motorcyclists, but even in those cases concessions have been made which will go a long way towards smoothing away diīiculties. This good end has only been secured by reverting to the course originally proposed by the Auto-Cycle Club. The danger in being grasping is the risk of losing everything—even that which is justly due, and we regard the attempt of a certain section (backed up by a journal which, had it genuinely had the interests of motor-cyclists at heart, would have been more discriminating and discerning) to secure the inclusion of the quad amongst motorcycles as having created a very grave situation. At one time the quad was undoubtedly a motorcycle, but the up-to-date articles are more entitled to be classi□ðed with cars than with the simple motorcycle. Only by deliberately abandoning the quad and drawing the dividing line at three wheels and a moderate weight was it possible to secure diīerent treatment for the motorcycle that which is being meted out to the car."

"VARIOUS SUGGESTIONS HAVE been made to the Board to provide a practical method of showing a lighted number on a motorcycle, but the only one which has been referred to, in the letter from the Board to the Councils, is one which has been followed up by Messrs. Joseph Lucas of Birmingham, who are prepared to supply plates and □ðxings."

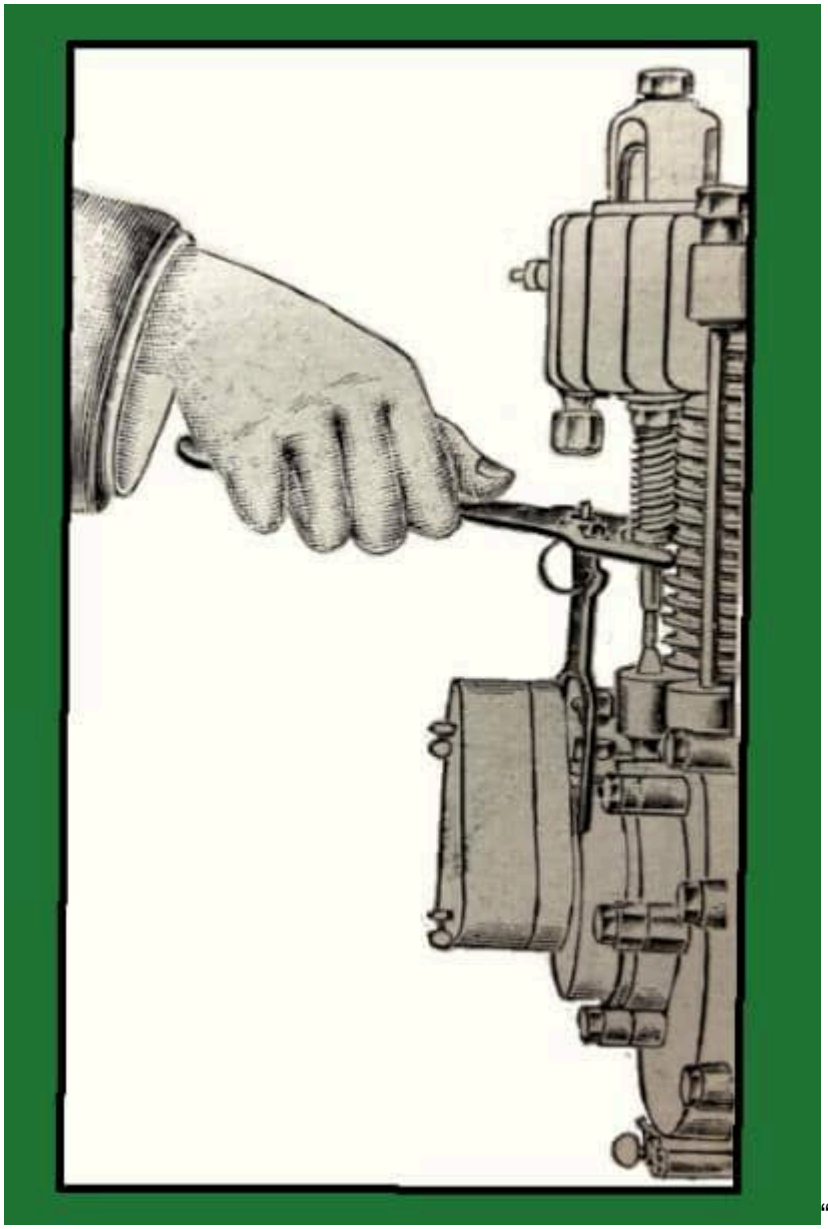


The first design for a number plate light came from Lucas. All hail the Prince of Darkness!

“A COMPACT LITTLE CHARGING SET for the accumulators of motorcars and cycles has been produced by Messrs. Gilbert Gilkes and Co, Canal Iron Works, Kendal, who are the leading manufacturers of turbines of all powers in the kingdom. Where one has an ordinary water supply with a good pressure—say not less than 40psi—the combined turbine and dynamo should prove invaluable. All that is necessary is to join up the turbine to the ordinary house tap and then the accumulator being connected up to the dynamo it is simply necessary to regulate the water supply so as to obtain the correct charging current, the necessary instruments being combined with the set. This little set is vastly more convenient than using a small gas engine. The price, complete, is £17 10s.”



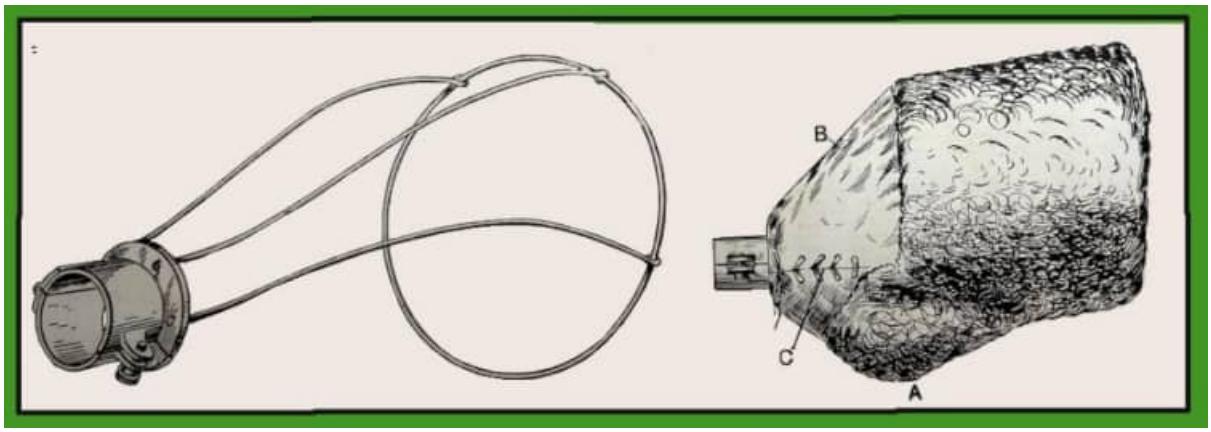
“Turbine-Dynamo Charging Set.”



“Brown Bros have recently introduced a useful little tool—which we have examined—for easily removing the springs of exhaust valves in cases where it is necessary to remove or re-grind the valve. It is made in two pieces, one forming a fulcrum for the other. The price is 2s 6d.”

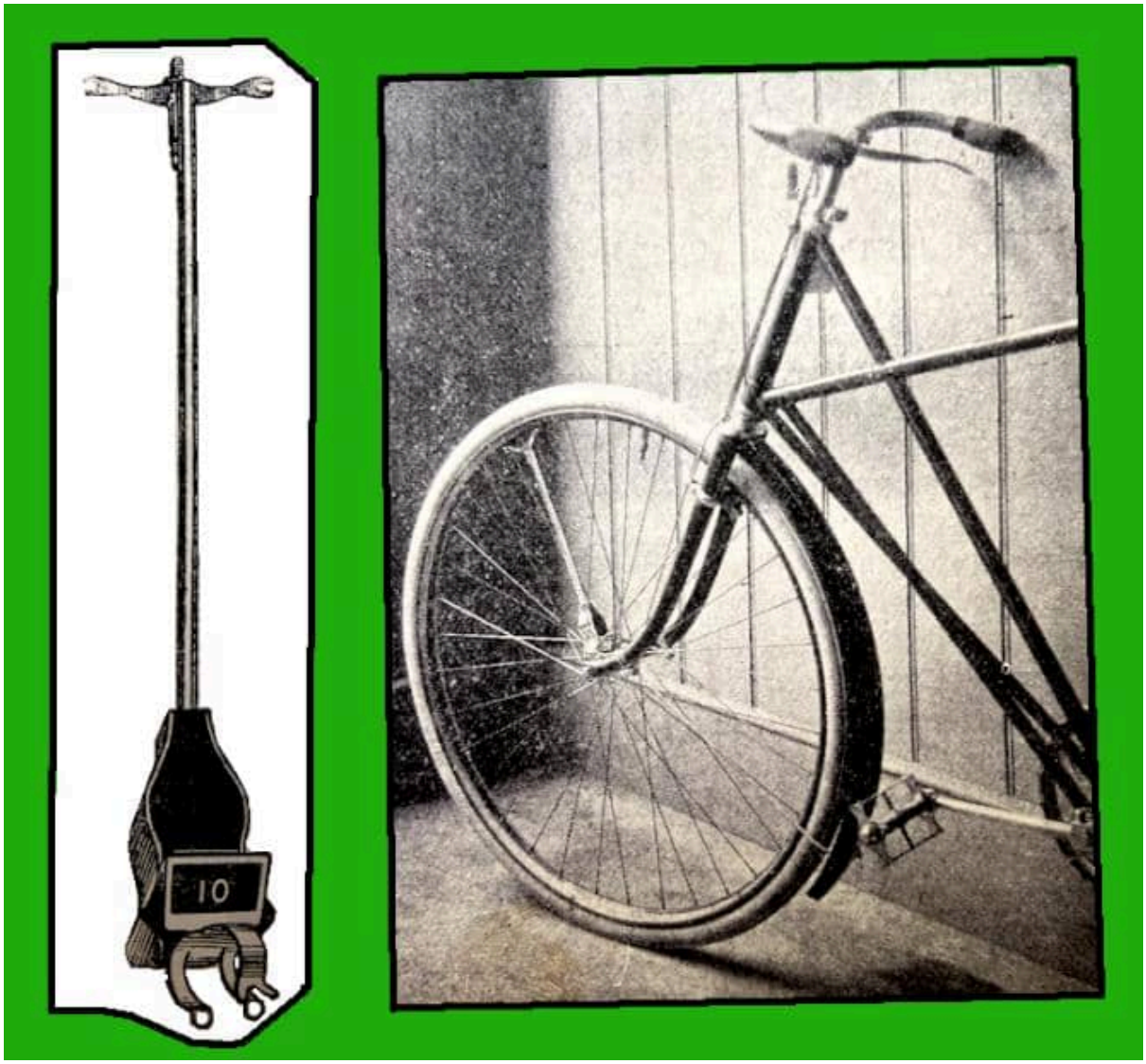
TO THOSE WHO SUFFER from chilblains and cold hands when motor cycling, a recent invention of Miss Biggs, of Richmond, will be welcome. This takes the form of a hand shield or muī □ðtted to the handle-bars. Two shields are prepared, one for each hand, each made of a framework of wire, wicker, buckram, metal, etc. Fig 1 is a perspective view of the wire frame-work forming the substructure to which the muī is □ðxed ready for attachment to the handle-bar of a bicycle, covered with suitable material, the cover-ing being continued all round the framework so as to fully enclose the hand of the rider. On the underside, where the framework is purposely left quite open, the covering is given a loose or bagged shape as at A. The portion nearest to the sleeve A, by which it is attached to the handle-bar, is preferably covered with leather, both in order to throw oī the rain and to provide for the wear consequent upon removal and reattachment of the muī. Such a leather portion is shown at B. An opening in it is necessary. to

enable the hinged collar to be opened out, and the muī to be removed from the handle-bar; this may be ordinarily left tightly buttoned or laced as at C.



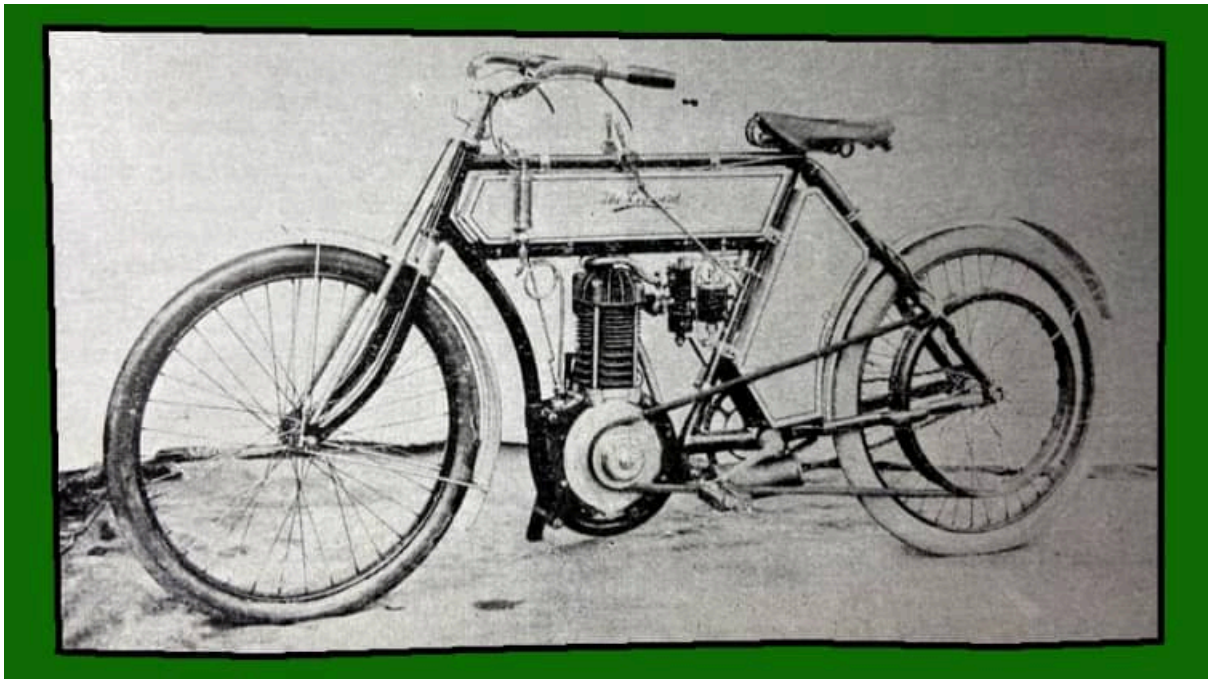
Miss Perkins' muī, Fig 1 and (right) Fig 2. Handlebar muīs are among the most useful motor cycle accessories; I've used them for the past half-century. Thank you, Miss Perkins.

"THE USEFUL INVENTION, OF WHICH we give an illustration, is that of a speed indicator recently invented by Mr W G C Reed. The main principle embodied in this invention is the employment of the action of centrifugal force pulling on a small weight enclosed in a tube (up and down which it has a free passage), this weight being at the same time attached to a ribbon on the surface of which are □ðgures indicating the various speeds at which the motor cycle is travelling, the other end of this ribbon being attached to a coiled spring, somewhat in the same manner as in the familiar spring tape measure. The tube is placed between the spokes of the front wheel, one end being clipped to the rim, the other being attached to and communicating with the case, this latter being attached to the hub, the whole mechanism thus revolving with the wheel. The action is as follows: On the wheel being revolved the weight is projected up the tube towards the rim of the wheel, and in doing this overcomes the tension of the coiled spring, with the result that the □ðgures on the tape are pulled under the face of a glazed aperture in the case which is □ðxed to the hub. Conversely, on the bicycle slowing down, the spring overcoming the centrifugal force has a tendency to draw back the □ðgured ribbon in the reverse direction, thus providing a very delicate and reliable speed indicator. We may mention that the device is manufactured and sold by the Civil Service Motor Agency, 292 High Holborn, WC."



With speed traps spreading throughout the country a speedo was no longer a luxury.

“THE LEONARD MOTOR-BICYCLE is made by Messrs. JJ Leonard and Co, Brockley Garage, Brockley Jack Hotel, Brockley, London, SE. It is □ðtted with the MMC 3½hp motor mounted vertically in a loop frame. The carburetter is a Longuemare, and a large supply of petrol can be carried equal to 100 miles running. The case behind the diagonal contains a 20 amp-hour Dinin accumulator and trembler coil, and ample space for spare parts and tools. The front forks are Duplex pattern. The transmission is by a long V-belt. An eīicient silencer is □ðtted, and lubrication is by force pump. The tyres are new Dunlops, the rear one being 2½in diameter. The wheel base is long, giving very comfortable riding. The front mudguard is extended over the wheel. The price, with the liberal guarantee of 12 months for frame and engine, is 45 guineas.”



“Leonard Motor-Bicycle.”

“THE AUTO-CYCLECLUBDESERVEStobe congratulated upon the success of its □ðrstannual dinner, held at the Automobile Club, Piccadilly, last Tuesday. ThePresident, Mr RogerW Wallace, was in the char, and was supported by nearly sixty members and friends of the Club. A notable feature was the strong force in which members of the Motor Cycling Club attended the dinner, a courtesy which we feel sure will be reciprocated when the latter club holds its annual function next month.”

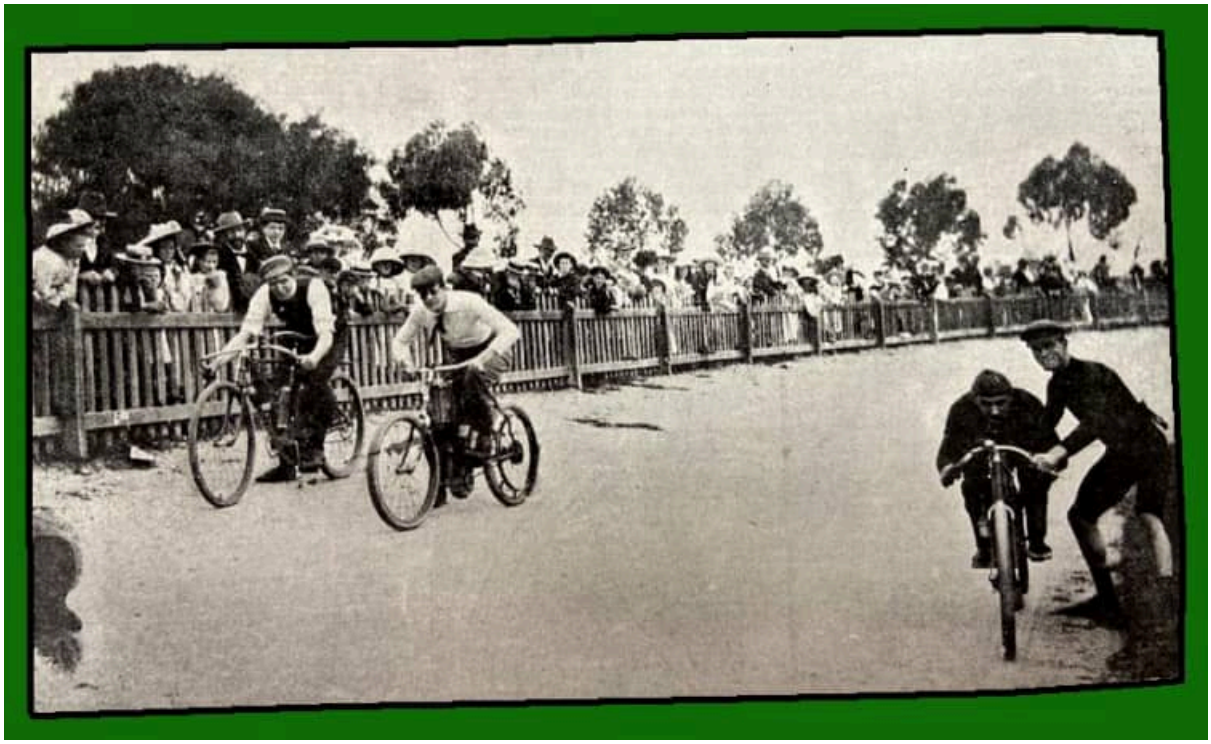
“The Auto-Cycle Club Dinner at the Automobile Club.”

“The Badgeof the Auto-Cycle Club.”

“THE MOTORCYCLINGSECTIONOFtheAustrian Automobile Club does not intend to let the petrol in its tanks go stale for want of use. Amongstthe many trials and competitions announced for the immediate future and for next season are hill climbing trials at Semmering and Exelberg;an international track race for the Lurion prize over a course of 100km (62 miles); an international road trial of 300km (186 miles) on Gordon-Bennett lines; a Vienna to Brunn

race; an 'expresscourier' ride; a 'balloon pursuit' ; a 'fuel consumption' competition; and a 'paper-chase'. A special excursion Homburg for the Gordon-Bennett race next Junewill also be arranged."

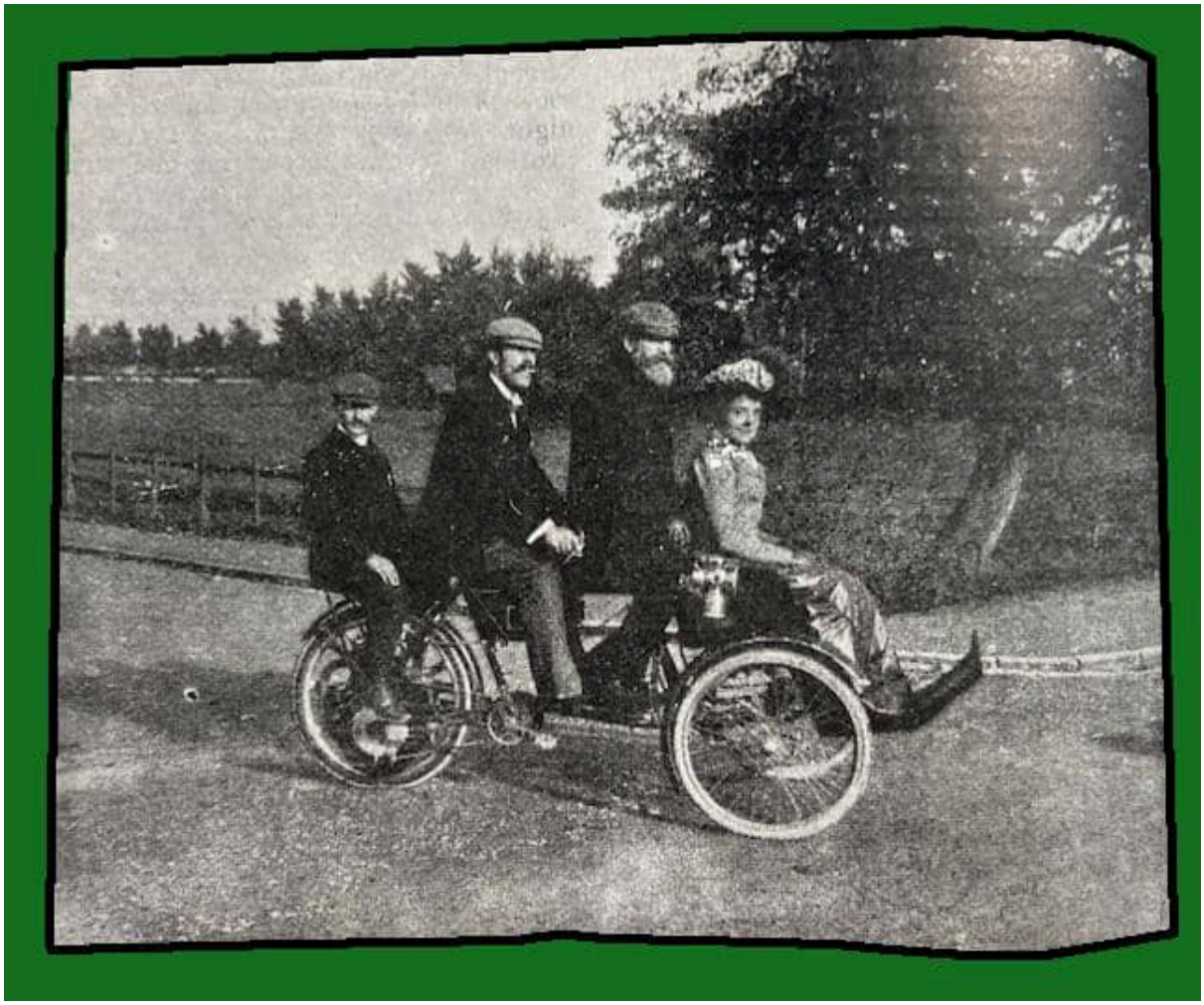
"A SERIESOFMOTORCYCLERACESwereheld at the WACA Oval, Perth, West Australia, in conjunction with the eight hours' sports on 24th, 26th and 31st October. The □ðrstracewasa ten mile handicap, in which seven competitors faced the starter, viz: Armstrong (2½hp Minerva), McKnight (2hp Indiana), Gilmour (1¾hp Werner), R. Sampson (1¾hp Werner), H Sampson (1¾hp FD Werner), Woods (2hp Minerva), Singe (1½hp Columbia). Before a couple of miles were run oī Woods had to retire with a short circuited battery and a broken oil pump. Shortly afterwards Armstrong, who was going well, doing the mile in 1min 40sec, broke his advance spark lever and was thereby unable to get any speed out of his machine. Gilmour rode a splendid race and passed the □ðnishingpost□ðrst,withRSampson second and H Sampson third. The three competitors rode Werner 1¾hp machines. Time 18min 23sec. The □ðve-milerace proved a little more exciting than the ten mile. The starters were: Armstrong, Lovegrove,Woods, Gilmour, Jewell, Sampson, H, Sampson R, Singe, McKnight. H Sampson and Singe had to retire as their tyres blew oī the rims before going very far. Lovegroveon a 2½hp Minerva made the pace hot from the start, but Gilmour stuck to him. Armstrong again had hard luck; some of the petrol splashed out of the tank, and was ignited by a spark as a result of one of the electrical wires coming in contact with the frame. Before he had gone far he was racing around the track enveloped in a sheet of □ðame.Hequickly pulled up, however, and extinguished the □ðame.He was nevertheless burnt about the face and hands a little, but luckily no further damage was done. Lovegrovewon the race, with Gilmour second. Time 9min 15sec. The □ðve-mileraceheld on the 26th was ridden in the rain and only three competitors started, viz Armstrong, Gilmour and McKnight. The latter won from Gilmour by half a lap. Trouble was caused by the belts slipping, resulting from the mud and wet; so McKnightwith a chain-driven machine had it all his own way. Great interest is being taken in the coming meetings and it is expected that a largely increased number will start. As an example of how motor-cycle racing is going ahead in Australia the following facts are interesting: In the eight hours' sports, 1901, two machines started; in 1902, four machines; and this year ten started in the □ðvemilesandnine in the ten miles. Motorcycling, though only in its infancy here, is steadily on the increase, but the roads are against it.—'**CATO**'."



“Motorcycle Racing in Australia. Three of the starters—Jewell, Sampson and Gilmore—in the Five Miles Race.”

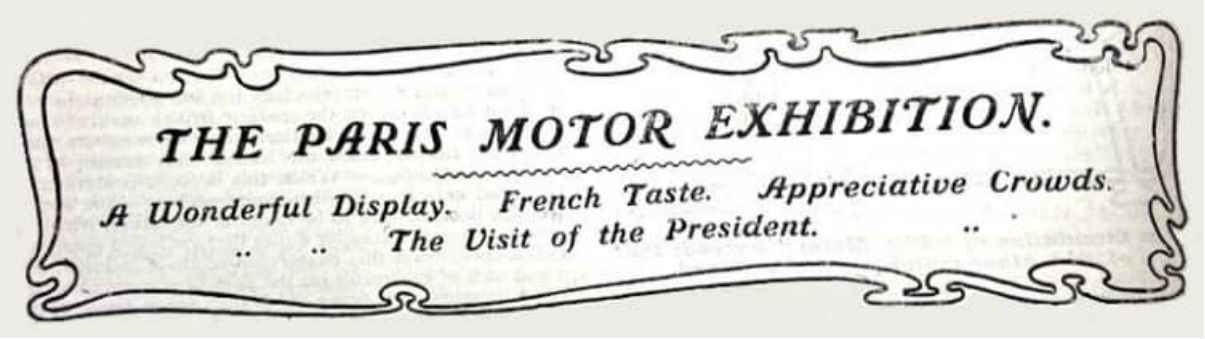
“AA HANSEN, A WELL-KNOWN American road and track motorcycle racer, made a remarkable ride in September at Gar□ðeld Park, Chicago. One of Hansen’s objectives is to ride 1,000 miles in 24 hours, and although he is nearly 300 miles away from his goal as yet, he hopes to do it eventually. In the ride under notice he had particularly bad luck with his tyres and with the weather, experiencing eleven punctures and being seriously hampered by, rain on eight diīerent occasions: indeed so unlucky has he been in this respect throughout his racing career that he has earned the nick-name of ‘Rainmaker’. The actual distance covered in the 24 hours was 701 miles I,330 yards—67 miles better than his previous record. The actual riding time was estimated at 20hr 25min, 52⅖sec—about 29¼mph all through. He rode a ‘Mile-a-minute’. Mitchell motor-bicycle; and a companion, Geer, mounted on a similar machine, rode by him at intervals and handed him food and drink—also a big cigar which he lighted from the glowing stump, of Geer’s smoke and puīed at with gusto till it was □ðnished.”

“A Twenty-Four Hour Motorcycle Ride in America. Preparing to give Hansen food.”



“A Good Load. Two ‘Singer’ fore-cars were out for a trial run, when returning, a burst occurred in

the tyre of one of the machines, which it was impossible to repair on the road. The two riders from the disabled machine were therefore mounted on the other machine, which took the four passengers safely home, a distance of at least □ðvemiles."

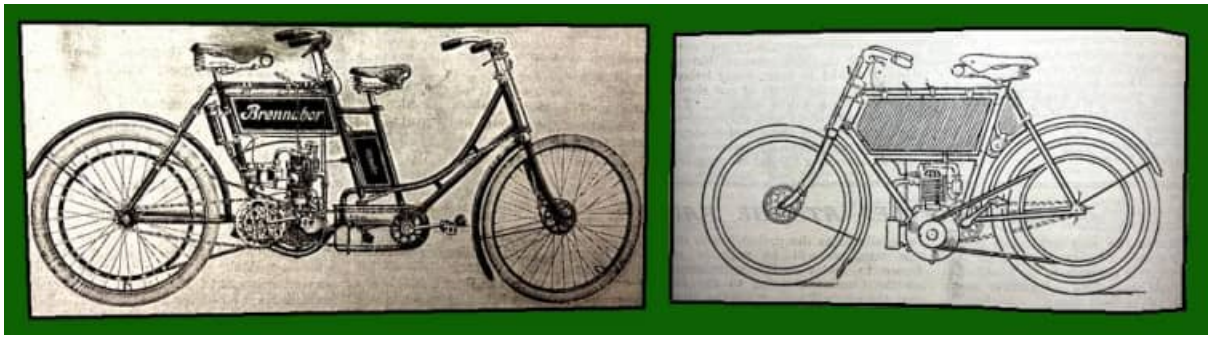


"ALTHOUGHTHEVASTEXHIBITIONisprimarily a show of cars there is no lack of motorcycle exhibits to be found such as would take the enthusiast many hours to inspect even super□ðcially. Although, as a result of the immensity of the GrandPalais, the motorcycles appear to be lost, on taking a bird's eye view from one of the galleries, there are very few stands indeed which are without something of interest to the motor-cyclist. Glancing round at the exquisitely decorated stands—such indeed as make our eīorts at home look puny by comparison—one sees in every direction names that have made motorcycle history—De Dion Bouton, Clément, Minerva, Rochet, Gobron, Peugeot, Werner, Société Francaise, Fabriques Nationales, Knap, Griīon, and innumerable □ðrmsoflessernote. At each succeeding exhibition the tendency seems to be to relegate the great majority of the motorcycle exhibits to the spacious annexes and galleries and underground areas, and it is in these departments that one is ever and anon coming across exhibits embodying strikingly original features. Although a visit to our recent shows proved that for good solid material and workmanship combined with high □ðnishtheBritishmanufacturer cannot be excelled; the French machines on the other hand show

"A General View of the Paris Motor Show."

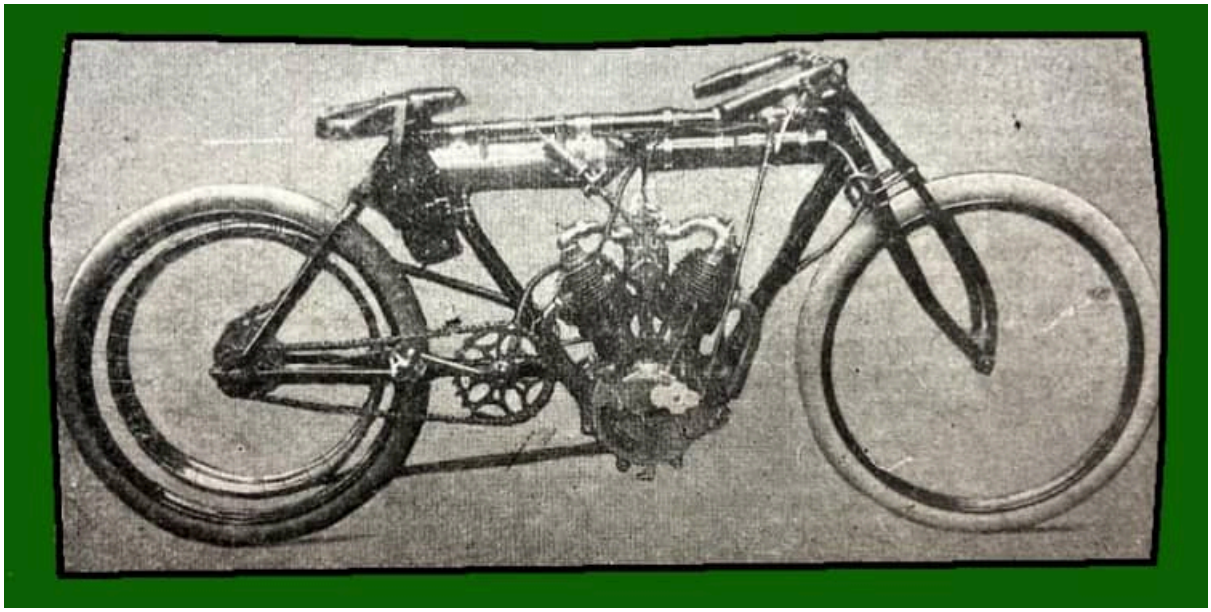
more originality in design, and there is much less tendency apparently to follow a fashion or to work in a groove than is the case with our own makers. Hence it is that each individual machine exhibited in Paris proves so interesting to the enthusiast. Ingenuity in design is the distinguishing feature—mach more so than super□ðne□ðnish, speaking generally, although in some cases a □ðnish that would satisfy the most critical eye is not lacking. The English visitor to the Show will be struck by the almost entire absence of machines of British manufacture. There can be no excuse for this short-sighted policy on the part of our manufacturers in not letting the elite of them Continental motoring world see that English talent can equal the best that the French and German can show us it the matter of sound workmanship and high □ðnish. There is an impression abroad that we cannot make motor-bicycles to compete with the French and Belgian makers, and it is desirable that this impression should be removed, especially so as the probability is that less attention will be paid in the future to motor-bicycle manufacture on the Continent, owing to the fact that the cars will monopolise the attention of at least the French makers. A surprising fact—and one on which we can congratulate ourselves—is that there is very little in the way of fore-carriages or sociable motorcycles at Paris, whereas at our own Shows they formed the most important feature (thanks to the attention paid to this branch of motorcycling by the makers), and there is no doubt that in this respect we have a very great lead over the French."

"THE **BRENNABOR-FAHRRAD-WERKE**, Brandenburg, Germany. These machines are built on somewhat conventional lines, with vertical engine and belt drive, spray carburetter, and high-tension ignition: the valve lifter and spark advance are operated together. The □ðnish is very good, and the brake gear and mudguard equipment are of eīicient dimensions.



"The Brennabor Tandem Motor-Bicycle."

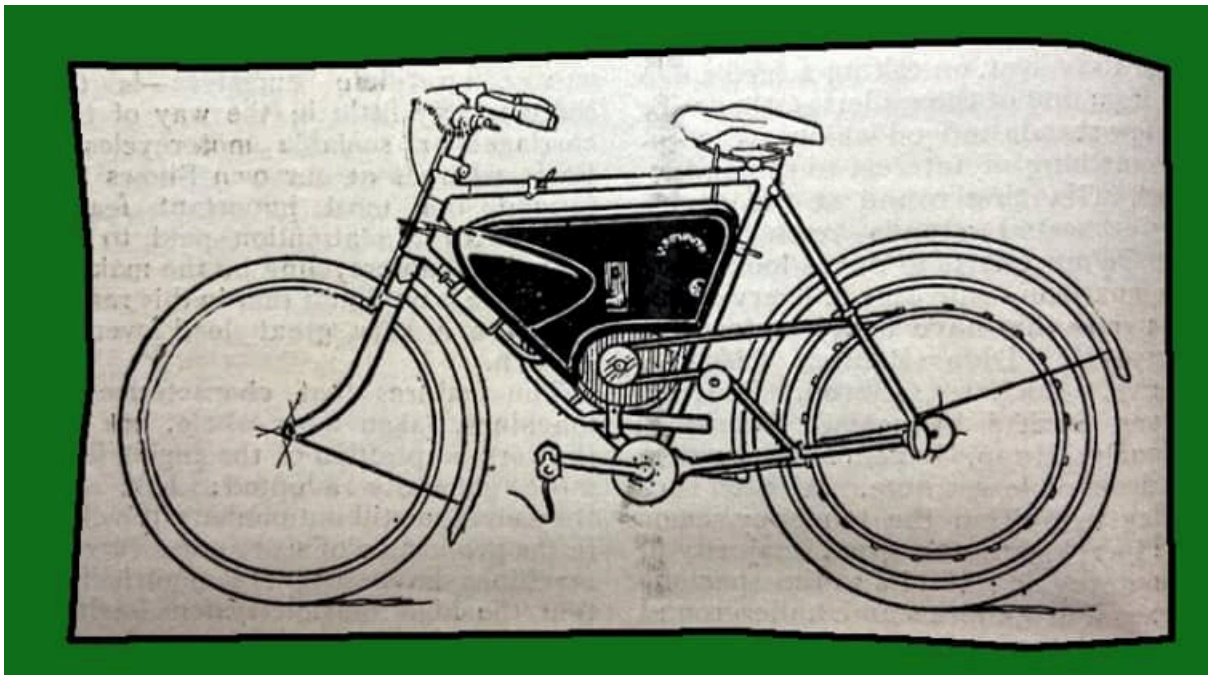
F Haustgen, Paris. This maker is displaying some excellent samples of the 'Iris' machines. These have an excel-lent name on the Continent, and they created a very good impression at the re-cent Stanley Show. We noticed in Paris, however, that a new 4hp two-cylinder water-cooled racing model is now being made. In this machine our re-presentative noticed a new arrangement of radiators, which stand well away from the water tank. **Cottereau et Cie**, Dijon. Three belt-driven motorcycles are on the stand of this well-known company, including a lady's model. The frames are very strongly made, the lady's particularly so a 2hp engine is □ðttedtothe latter, which does not depart much from the standard type, but is remarkable for its easy control. Of the others, the 2½hp is the more striking: the engine is □ðttedverticallyin a special cradle, and magneto-electric ignition is used. **Griī on, Courbevoie (Seine)**. The successes



"The 'Griīon' speed machine is intended for high speeds on road or track. It has a 5hp Zedel twin-cylinder engine. The wheel base is extra long."

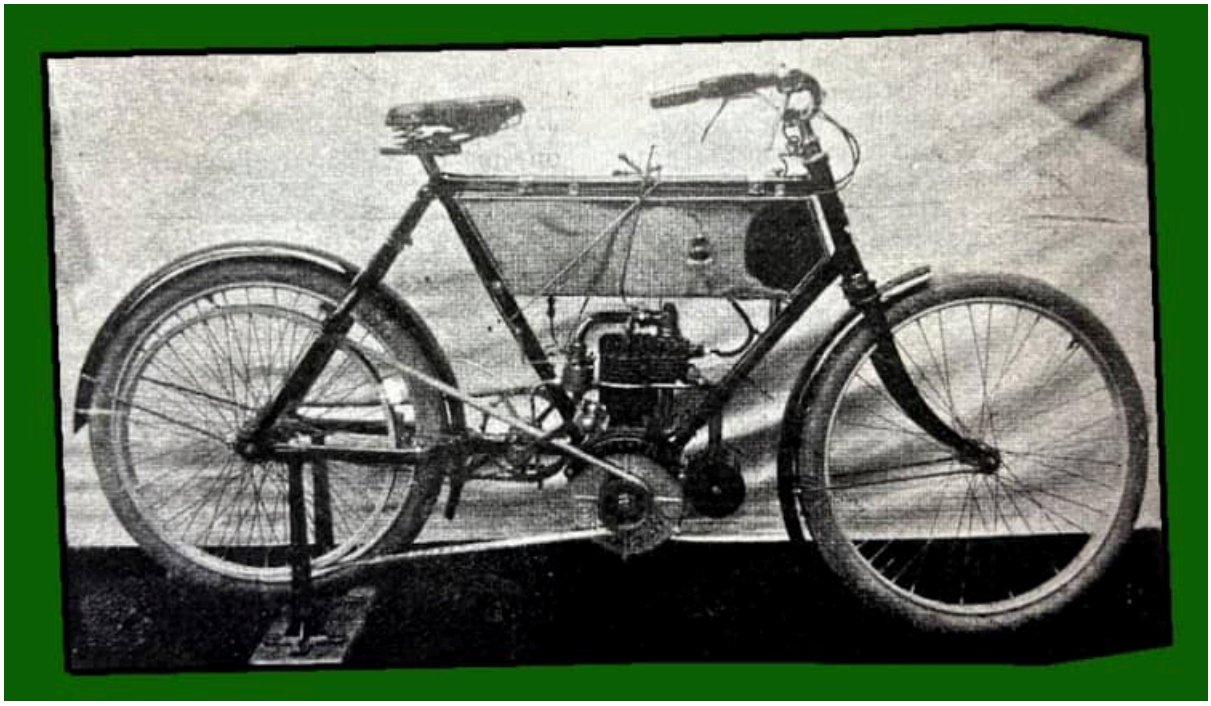
which Griīon machines have met with on the Continent in open competition have made them well-known in this country. Specimens also created considerable interest at the Stanley Show. The most striking machine on the stand is undoubtedly the 6hp double-cylindered air-cooled and-belt-driven racer: it is wonderfully light. The petrol and lubricating tanks and coils are attached to the top tube, and the accumulator is □ðttedtothediagonal tube just in front of the back stays. One carburetter supplies both cylinders, and the two exhaust lifters are actuated by one movement from the handlebar. A light lady's model is also worthy of inspection. **Societe la Touricyclette**, Paris. Although not new, La Motosacoche is still looked upon by many as a novelty, and is attracting considerable attention. The name is given to a set of □ðttings (including

an engine of 1¾hp), which can in a very short space of time be attached by the aid of four clips to an ordinary diamond-frame machine, thus converting it into a motorcycle. Although many people look upon the arrangement somewhat sceptically, machines □ðttedwithLaMotosacoche have not proved themselves freaks, but have



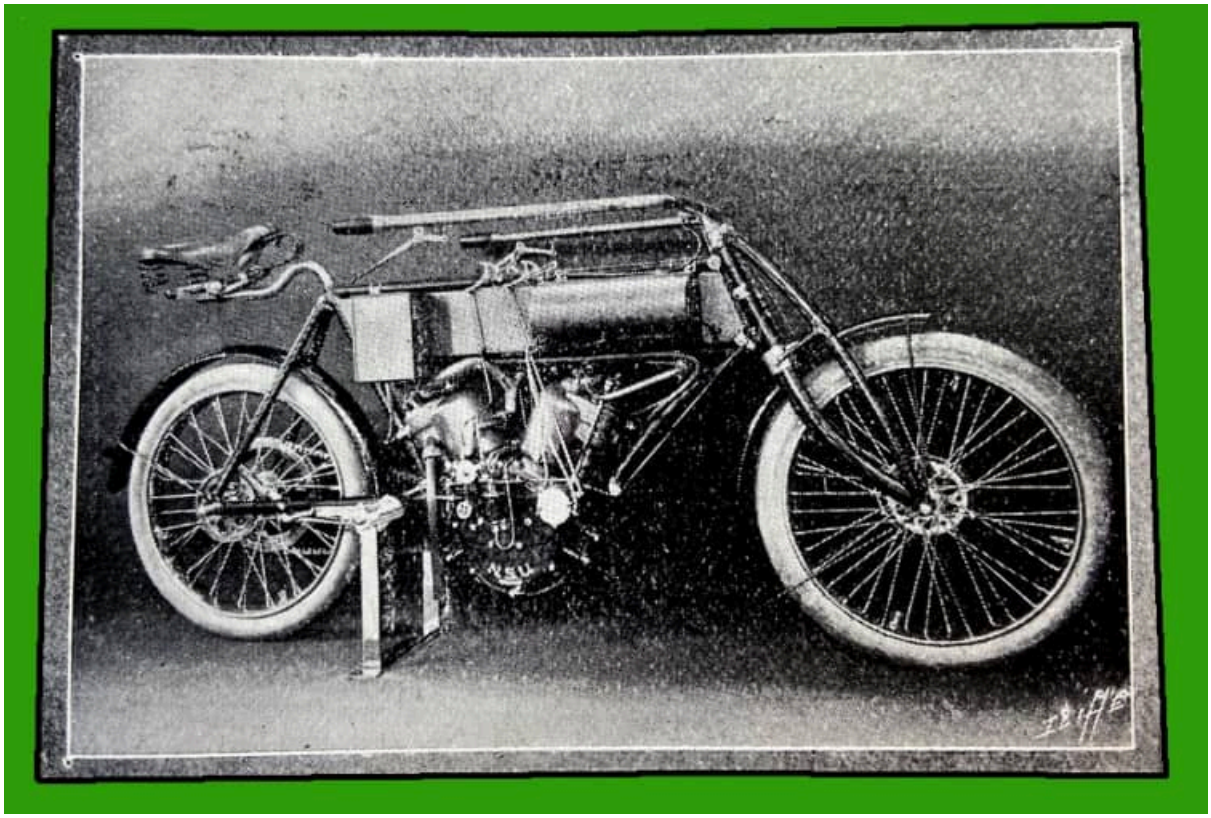
"The Motosacoche □ðttedtoa Bicycle."

performed exceedingly well. The 1904 patterns are a great improvement over the older ones, being stronger and better □ðnished.Itwill be noticed that air scoops assist in cooling the engine on this machine. **Breuil,** Avenue de la Grande Armée, Paris. This maker is exhibiting six serviceable looking machines. Although not remarkable for their □ðnish,theyarenot unattractive in appearance. All are belt driven, some having round belts and the others □ðat.TheBreuil engines are of 2hp, and all are □ðttedtospecial cradles in vertical positions. The engines are light in weight for their power and are well made. Including the non-slipping pulley, the over-all width in each case is well under 7in. A spray carburetter is used, and the contact breaker is of the trembler type. An improved form of silencer has been adopted. It is small, but we were informed that besides being a good baīler of the exhaust, there is no appreciable loss of power. The valves on the Breuil machines are very accessible, while the mounts are very easily controlled. Two powerful band brakes are □ðtted,andthe wheels are shod with Colliere tyres. **Struck**, Amiens. Two motorcycles with belt drives occupy this stand. The engines, which are vertically placed, have a bore and stroke of 66x77mm [263cc]. The power of each is 1¾hp. Trembler contact breakers are □ðtted,asarespray carburetters; 1¾in belts have been used, and to the belt rim is attached a powerful brake, actuated by a cable from the handlebar. The accumulator, coil, petrol and lubricating oil are all accommodated in a nicely designed tank attached to the top tube of the frame. The machines are excellently □ðnishedandwill repay a careful inspection. **The Compagnie Generale des Cycles et Automobiles Rochet**, Paris. Excellent specimens of the famous Rochet motor-cycles—with magneto and electric ignition—attract considerable attention. Both



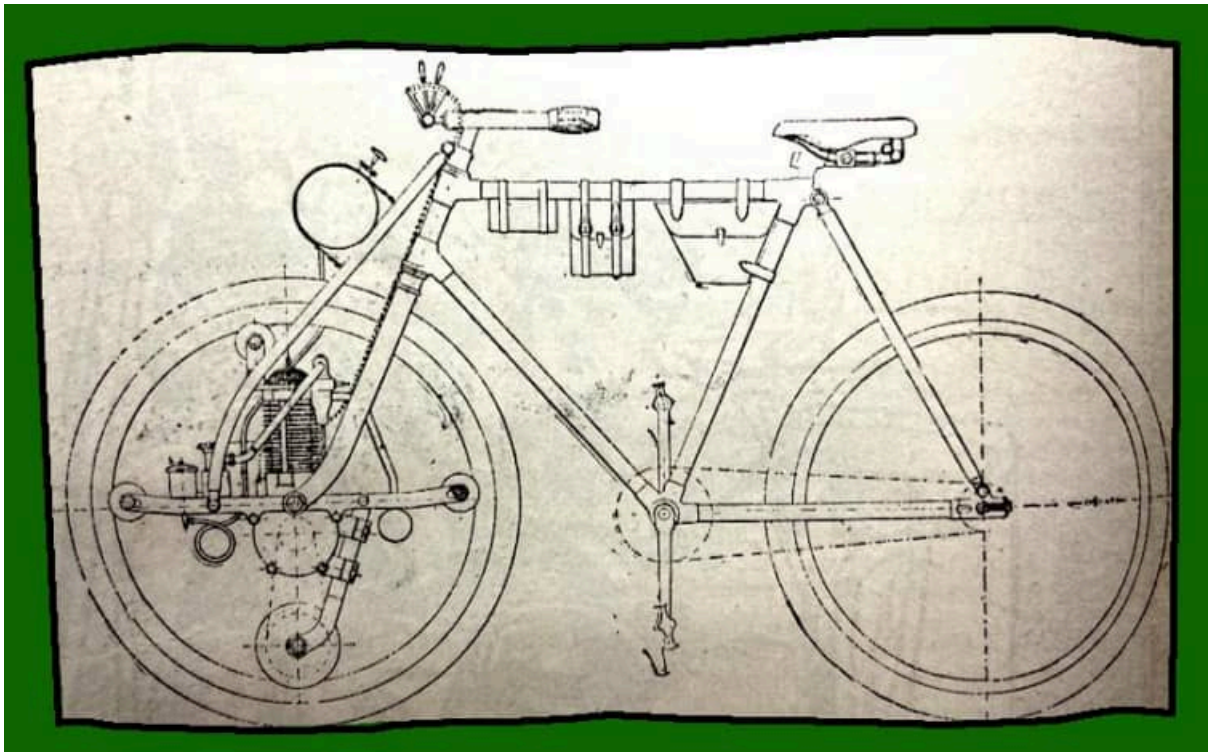
“The Rochet Motor-Bicycle.”

types are beautifully made, and suggest that considerable care has been taken in their construction. The magneto (new Simms-Bosch) model has a 2½hp engine, which is rigidly attached to the frame in a vertical position. It has a belt drive, the belt being rather wider than usual: All unnecessary weight has been eliminated, and the rakish appearance of the machine cannot fail to appeal to many. A neat form of carrier is attached, while in addition to a back Bowden rim brake a powerful retarder acts eīectually on the belt rim. **Le Metals et Fils**, Paris. Several of the widely-known 2hp NSU motor-cycles are exhibited by this enterprising □ðrm. Most of our readers are fully acquainted with the details of these excellent machines—we need only repeat that the engines are □ðxed vertically, and that magneto, electric or high-tension electric ignition is □ðtted, according to the choice of the purchaser. The inlet valves are mechanically operated, and all the parts are readily accessible. The popularity of NSU machines may be gauged when we state that during the

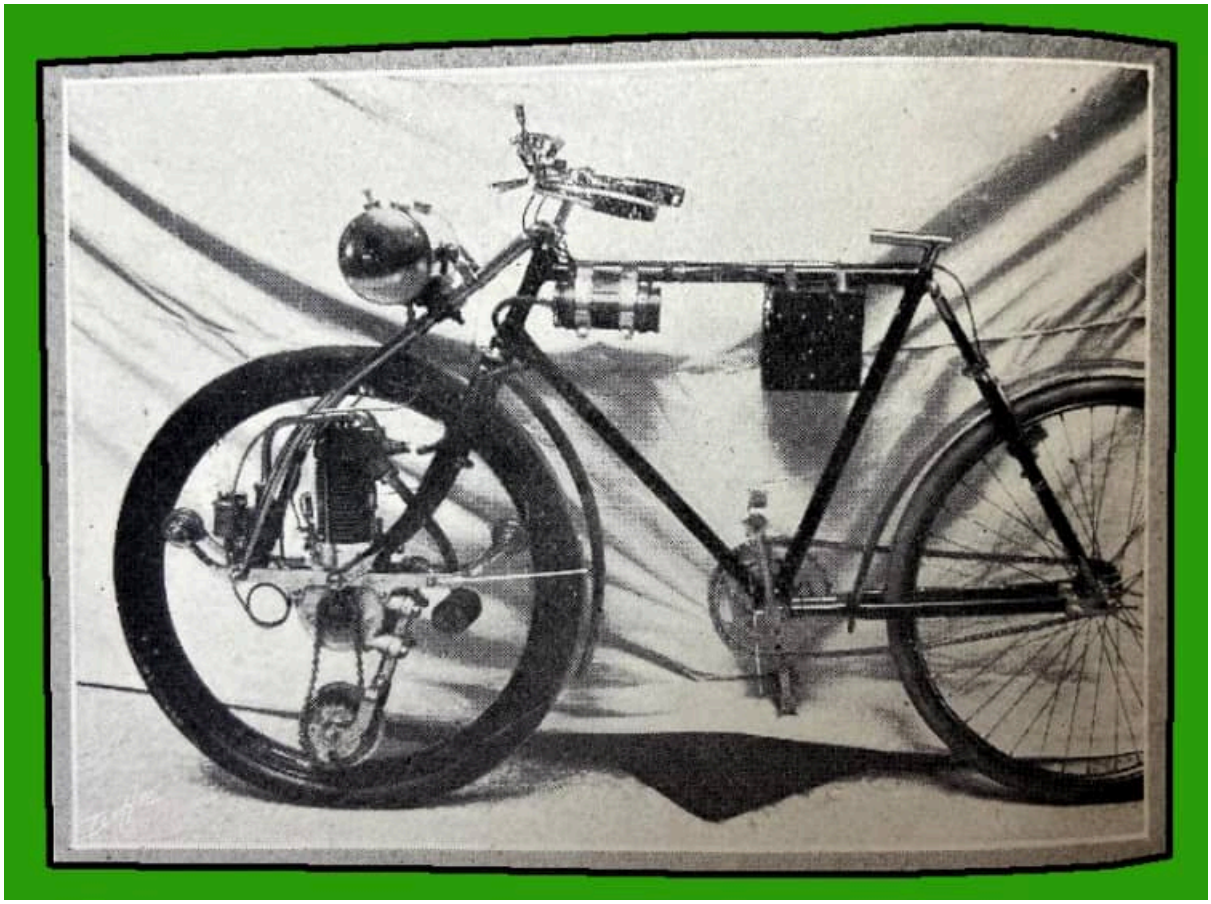


"The NSU Twin-cylinder Water-cooled Motor Bicycle."

present year the □ðrmhavedeliveredover 3,000 of them. The NSU motor carrier was shown at the Agricultural Hall last month, is also on the stand. This is □ðttedwith3½hpwater-cooled motor. The inlet valve is mechanically operated, and a two-speed gear is provided. A comfortable seat (not a saddle) is also □ðxed,whilethecarrier can be detached and a seat for a second person substIluted. Two brakes are □ðtted,andthecarburetter and ignition (magneto) are easily regulated by the driver without any bodily inconvenience. NSU also produce racing motor-bicycle of 10hp, having a twin cylinder water-cooled engine. The radiators are of a rather novel pattern consisting of a tank on each side of the petrol tank proper. These cooling tanks have tubes passing through so that a draught of air rushes through them when the ma-chine is travelling at full speed. The transmission is by means of a clutch and Renold pattern chain. There are no pedals to this machine. It should be said that although the design is that of a racer it has road equipment in the way of guards and brake gear. On the whole this machine looks a □ðercespeedinstrument and equal to anything up to 80mph. The weight is, of course, enormous. Amongst the curiosities shown at the Paris Salon one of the most notable is named **L'Auto-Roue Roux**, the agents' address being Rue des Beaux-Arts, Paris. The motor is □ðxedinsidethe front wheel, which has no spokes, but the rim is supported by arms having rollers at the end. The power from the motor shaft is



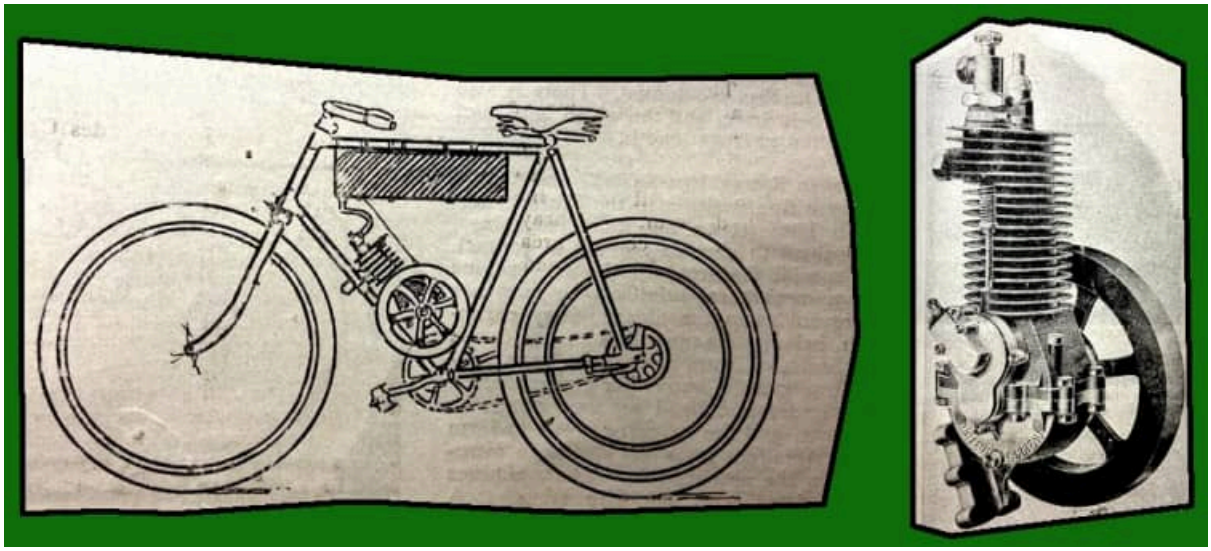
“Novel type of Front-driving Motor-Bicycle shown at the Paris Show.”



“One of the freaks—the Auto Roue Roux.”

transmitted by a short chain gearingon to a friction wheel, this beingheld in contact with the inside of the wheel rim by an adjustable arm. Thepetrol tank is carried on supplementary forks

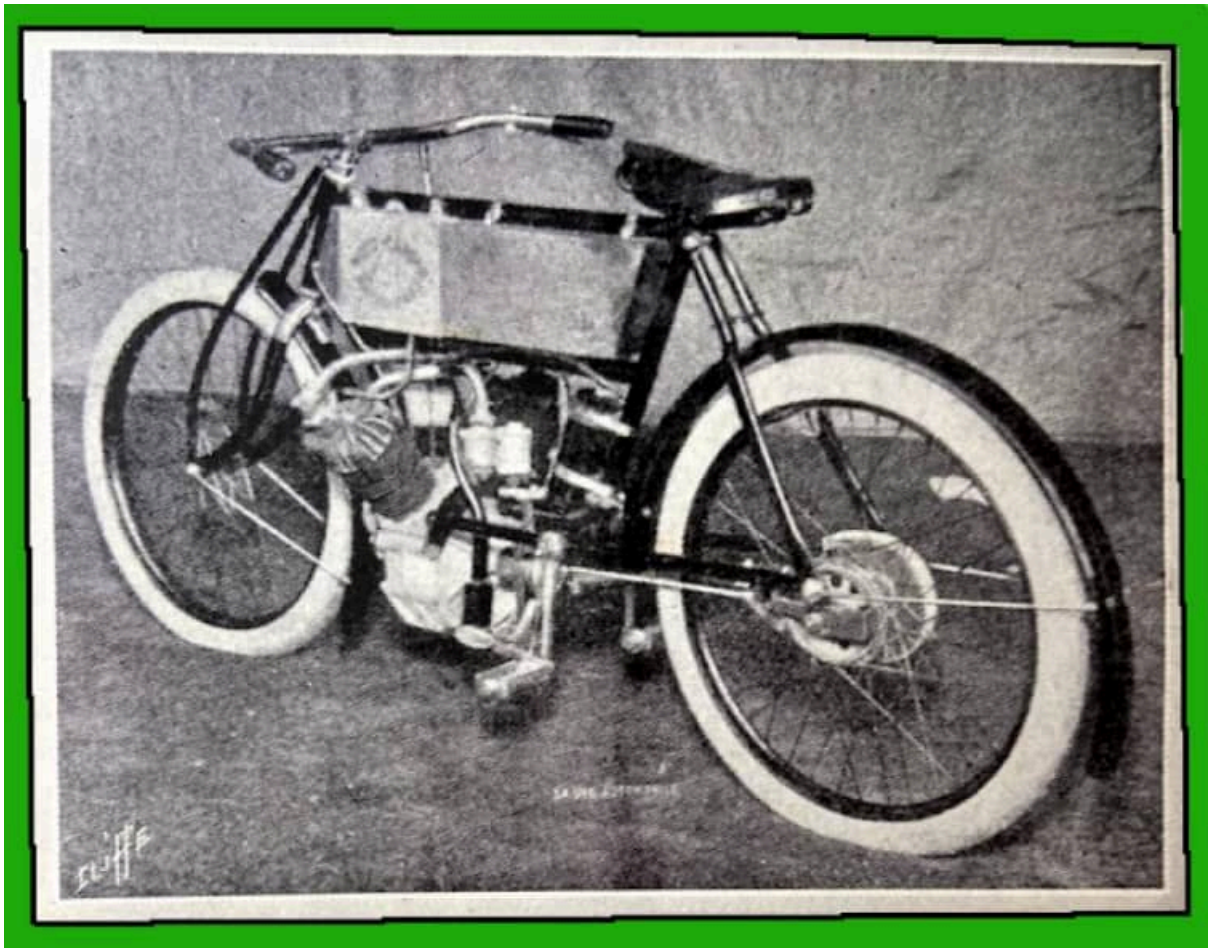
and the controlling levers are placed just in front of the handlebar. The coil and accumulator are supported from the horizontal tube. The price of this machine is £24. The maker claims that the transmission is perfect—this is doubtful—it is very stable, easily manipulated and the parts are adaptable to any bicycle frame." **Clement et Cie** have practically all their space □ðlled by cars, but they show one new pattern motor-bicycle, having a vertical 2½hp motor and Longuemare carburetter. The coil and accumulators are carried in the frame tank, and transmission is by V-belt. Two brakes are □ðtted, one being on the belt rim, and one on the front wheel rim. **R Rogers,** Paris, has a □ðne show'. of Fafnir motors, from 2½hp upwards. The small motors are used by many well-known □ðrms for motor-bicycles. Special features are the one-piece cylinder and head, positive make and break contact, extra large diameter valves, exhaust valve lifter, etc. The workmanship is very □ðne. In addition are shown some splendidly □ðnished accumulator charging sets. **Gladiator, Le Pré Saint Gervais (Seine)**. Among the imposing array of cars and pedal-propelled cycles to be found on this □ðne stand, anicely made belt-driven 2½hp Gladiator motorcycle attracts attention. It is very light for its power; the cover of the contact breaker is made to act as a cam for lifting the exhaust. **Rene Gillet**, Villa Collet, Paris, shows several motor-bicycles possessing some novel detail features. They are □ðtted with 1¾hp motors placed almost vertically between the main tubes; the control is eīected entirely from the handles by Bowden wires, one lifting the exhaust valve, and the other working the spark advance: a very powerful band brake is □ðtted on the rear hub: the diagonal tube is made to serve as a tyre pump, and the carburetter and ignition gear are all enclosed in a frame tank. **L Garreau**. An exceedingly light and neatly constructed motor-bicycle scaling 55lb only is shown by this □ðrm. The motor develops 1½hp and has an outside □ðy-wheel and one-piece cylinder and head: it is secured to the down tube by clamps on the cylinder and crank case. The surface carburetter, lubricator, and accumulator are carried in a case under the horizontal tube. Instead of an exhaust valve lifter the compression is released through the inlet valve when the spark is retarded. The transmission is by belt, and a back-pedalling band



The Garreau Motor-Bicycle." (Right) "The Garreau Motor."

brake is □ðtted to the rear hub. **EM Bowden**, Paris. Three of the new pattern motorcycles are to be seen here. It will be remembered that they are chain-driven, and are □ðtted with 2¾hp FN engines, vertically placed in strong cradles. The control is eīected entirely from the handlebar by Bowden cables, with the exception of the lever actuating the clutch attached to the big chain wheel. This lever is □ðtted to the horizontal tube of the frame, and its operation provides either a free or a connected engine as desired. The frame of the Bowden motor bicycle is unusually

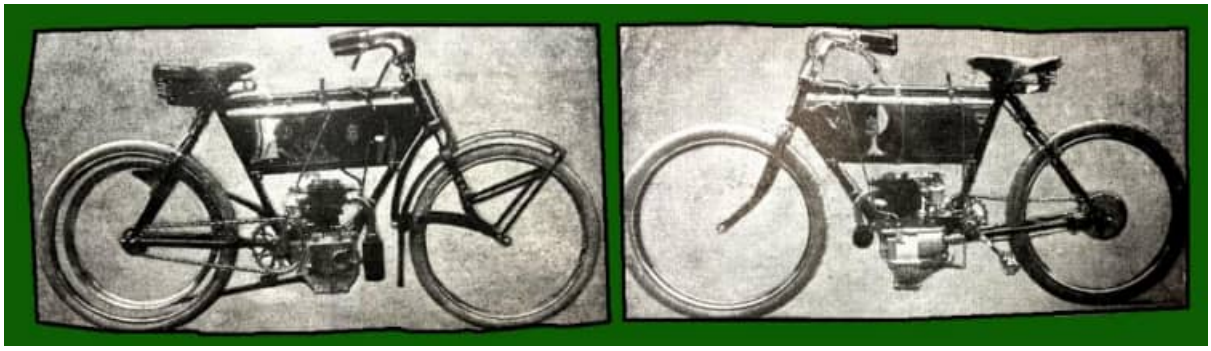
strong, and the forks are built on the girder system. The Bassée Michel coil is adopted, and, of course, the FN carburetter (spray) has not been dispensed with. The wheels are shod with Palmer tyres. On this stand there is also a very comprehensive display of adaptations of the Bowden wire transmission system. **Gobron-Minerva** show on their stand a racer evidently built for pacing in bicycle races, as it has a safety roller on the rear of the frame. The motor is 4½hp air-cooled, driving by a □ðatbelt:thetank is of a torpedo shape and the coil and accumulator are supported on a bracket in front of the steering column: it looks a very speedy mount indeed, despite its somewhat freakish design. The standard road machine has a



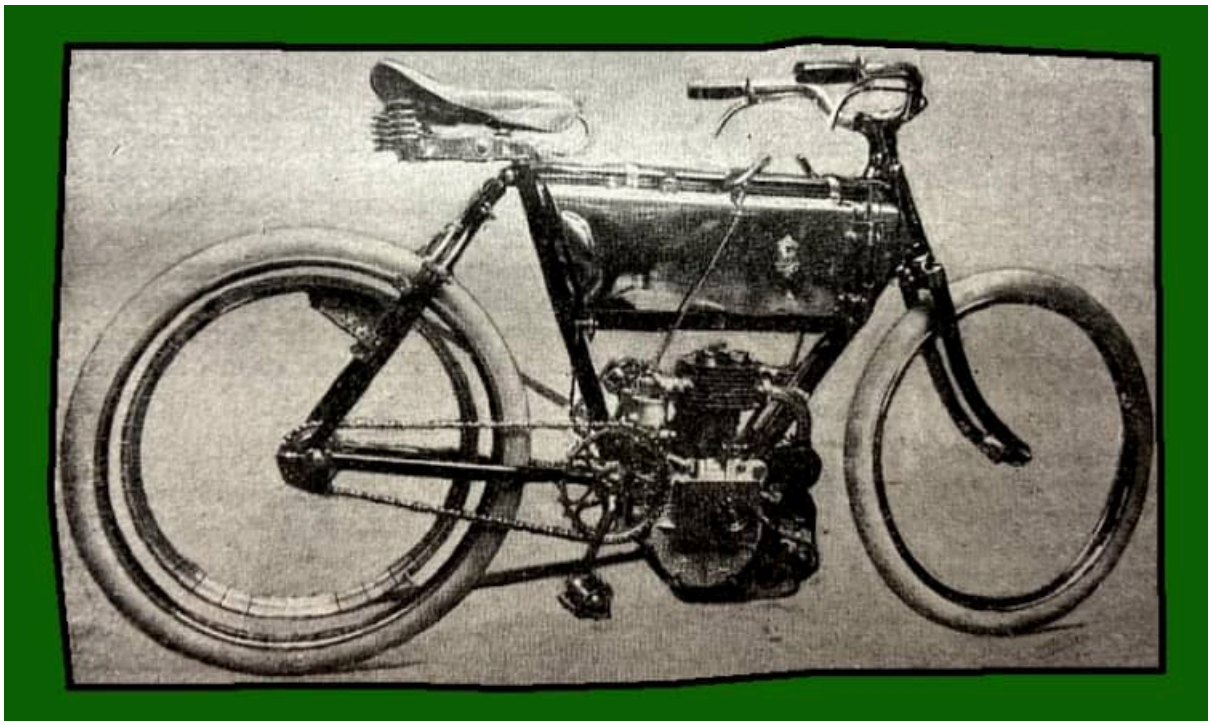
"The Ader Motor Bicycle, made by La Société des Moteurs Ader, Paris. The engine is the twin-cylinder inclined type made under the Ader patents, the transmission being the already well-known Moto Cardan.
Reproduced from La Vie Automobile."

vertical 3hp Minerva engine held in brackets between the main and diagonal tubes, and has the latest Longuemare carburetter □ðtted. The drive is by a V-belt of unusual width: only a single band brake on the rear hub is □ðtted and a new style of handlebar is used, being rather wide and brought well back. Altogether a most interesting display of cycles. **G Givaudan**, Lyons. In addition to a good display of motors—some of which have two cylinders—several complete motorcycles are shown by this maker. These vary in power from 2-3hp, and, although well designed and made, they are not distinguished by any remarkable departure from the standard types. The **Societe Francaise** have several 2¾hp motor bicycles on exhibition. The special features about the engine are the mechanical inlet and valve boxes placed in the front of the cylinder. The new l.onguemare carburetter is □ðtted, and transmission is by V-belt. Duplex forks

are used, and a detail worth noting is the extra strength of the mudguard stays to withstand the vibration. A band brake, of the double lap pattern, is □ðttedontherear rim. Thevalve gear is carried on a horizontal shaft in line with the main axle. Thecylinder and head are in one piece, with the sparking-plug in the centre. In its generallines this machine is not unlike the new Werner, especially in the frame and engine design. **PeugeotFrères** show a series of machines of specially interesting types. One of these is a 3hp machine with an extraordinaryform of spring fork suspension for the front



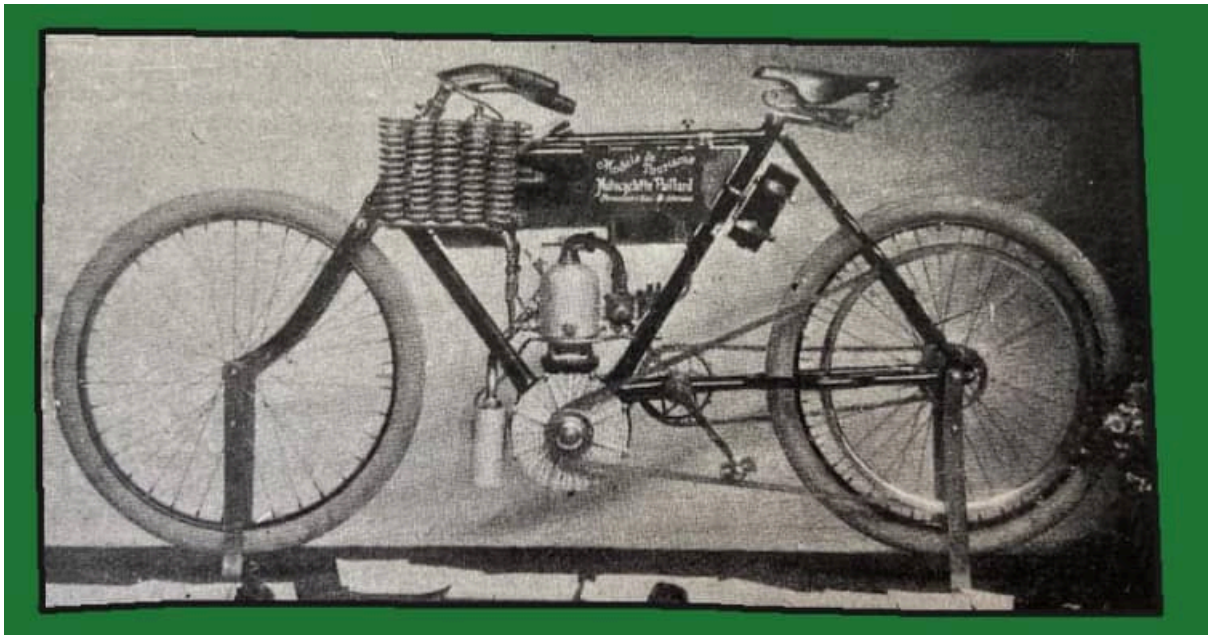
“This somewhat strangelooking motor-bicycle is a Peugeotproduction. Thecomplicated front fork construction givesa pneumatic spring buīer to take up the shocks and vibration of the front wheel; the spring is provided in the head tube.” (Right)“This Peugeotemploys a Cardan axle transmission. Another special feature about this machine is that a two-speed gearis provided—the operating lever can be seen a little to the right of the gearbox.”



“Peugeot touring Motor-bicycle, □ðttedwithrotarymagneto-electric ignition (note the chain drive for the armature).”

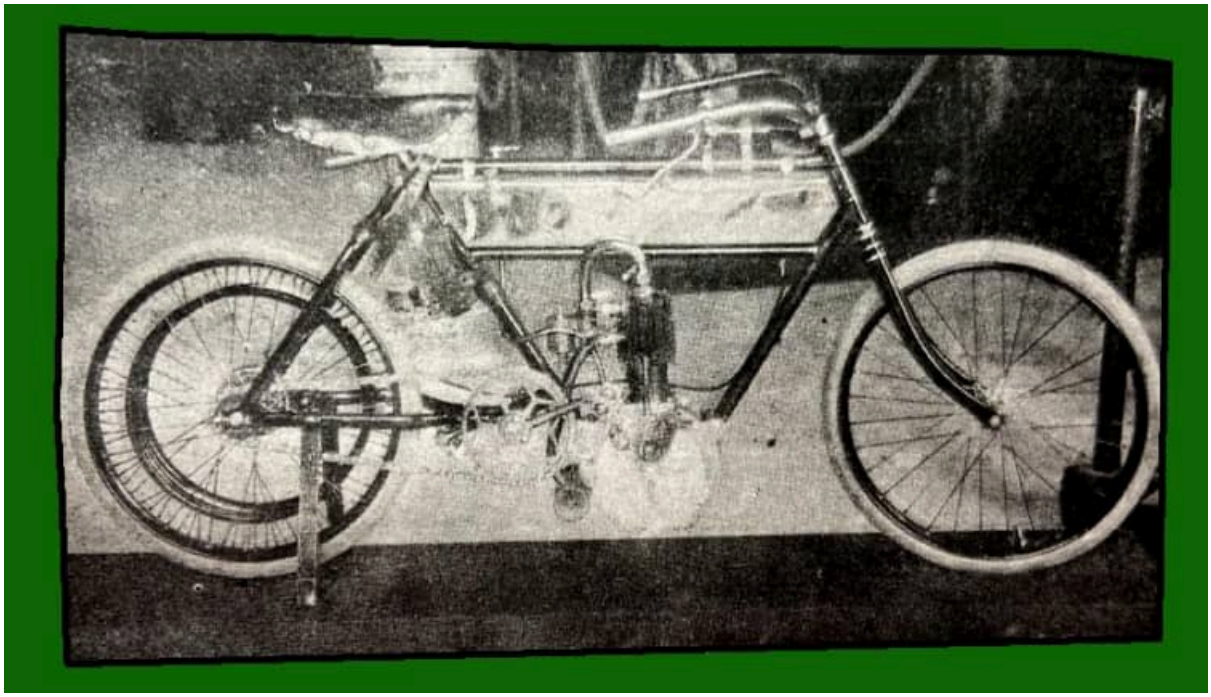
wheel: the wheel is carried by a series of jointed arms which work against a pneumatic spring concealed in the head tube. Thearrangement looks ugly and complex: another feature of this machine is a back rim brake acting on the pulley rim by a Bowden wire. Thestandard pattern machine is very much on the lines of last season, except that a larger engine is □ðttedandalso wide and extended mudguards. Another of these machines has the Simms-Bosch ‘arc light’

ignition □ðtted,anddrivenby a small chain. Another specimen has a Moto-Cardan transmission with the motor arranged transversely. A lady's motorcycle shown has a 'Zedel' engine arranged à la Minerva, is also □ðttedwithcushion forks. A 4hp racer exhibited has the motor constructed with a very small number of radiators: it has a belt drive and the usual features. A chain driver shown has a reducing gear on the engine and a spring controlled chain wheel on the rear; the chain is protected by a celluloid guard. Several of the machines are □ðttedwithadouble rim brake on the back wheel. **WH Dorey**, Rue Torricelli, Paris. A practical motor-bicycle clutch is shown, suitable for either a V or □ðatbeltandable to transmit up to 4hp. It has a particularly easy action, very slight pressure of the lever being necessary to put it in gear. **La Foudreet Cie**, Paris, show several touring machines, with 3hp Buchet engines mounted vertically, and driving by a wide □ðatbelt.Duplexforks, spray carburetter, and compression release on the inlet valve are notable points. The Buchet engines have the exhaust valve lift gear mounted on top of the cylinder. **Gebr Koerting**,Hanover, exhibit a line of 3hp two-stroke motors for cycles. The Crank case is used as a compressor for the charges of mixture, and the exhaust is automatically released through a port opened by the piston. Also on show is a □ðnetwo-cylinderset, coupled direct to a large dynamo, for lighting or accumulator charging purposes. **Bonnetet Jaccard**, Romanunotier Suisse. A 3hp belt-driven motor-bicycle is prominently displayed. The engine is □ðttedverticallyto the frame and has a mechanically operated inlet valve. The carburetter is regulated by a disc indicator, and a well-designed form of trembler contact breaker is adopted. There is also a long belt drive, and the wheel base is of more than averagelength. **Werner Frères**, Rue de la Grand Armée, occupy a □ðnepositionin.the central transept. They stage 16 machines, □ðnishedoīin various colours of enamel. The special features are the free engine pulley, mechanical inlet, engine governorto prevent racing, enclosed spray carburetter, belt rim clamped to a central □ðangeonwheelrim, improved brake gear, eīicient mudguards, handlebar control, etc. The cylinder and head are now made in one piece, and a swinging crank has been introduced to form comfortable foot rests. The machines are all □ðttedwithMichelin tyres. A number of handsome trophies won by the □ðrm'smachinesareeīectively displayed. **Auto-Bicyclettes 'Stimula'** all have 3hp engines □ðttedslightlyout of the vertical and driving via a □ðat belt. A special feature is a back pedal brake acting on the face of the belt rim. A lady's machine is shown here, but there is not suīicient dress clearance in the frame. The petrol tank is placed behind the diagonal tube. This machine has belt drive—unprotected by the way. **A Paillard**, Rue Daumesnil, Vincennes, exhibits a



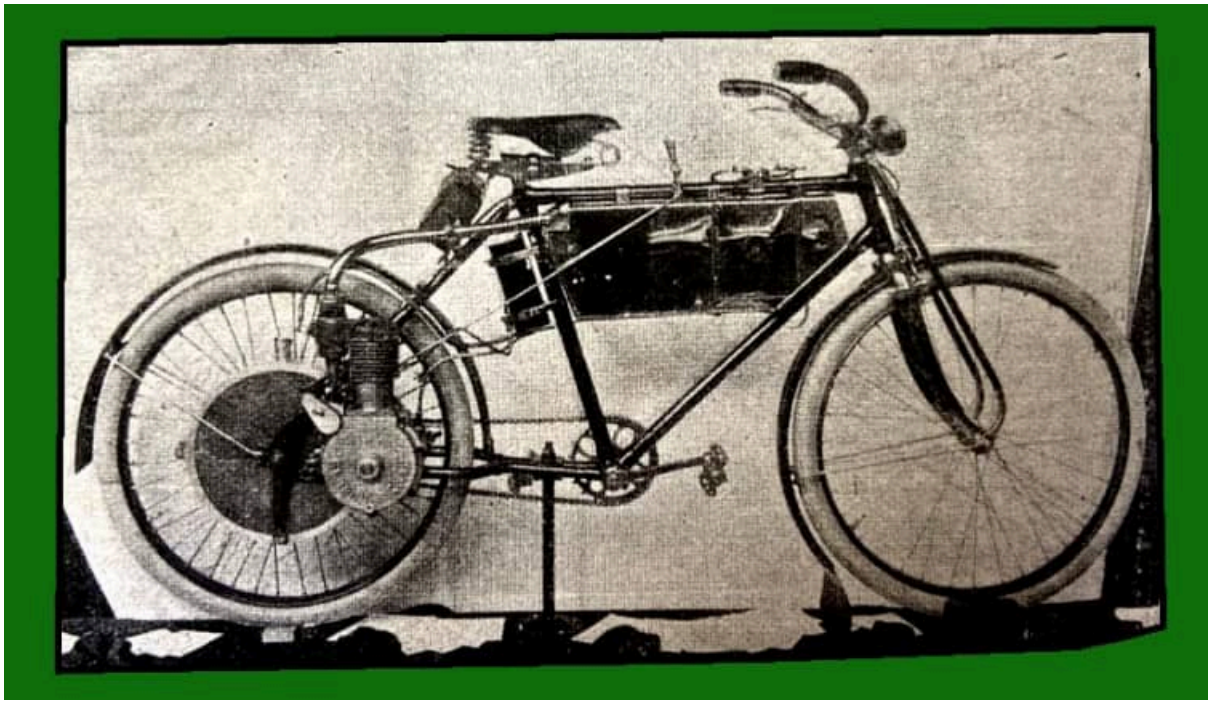
"The Paillard Motor-Bicycle."

water-cooled motor-bicycle of 3hp. A striking feature of this machine is the arrangement of coil tube radiators in front of the tank: it has belt drive and band brakes. A popular model shown has a 2¼hp 'Pipres' motor, and carburetter □öxed close up to the inlet. **Terrot et Cie**, of Dijon, have a series of rather well-□önished machines with a 2½hp motor mounted vertically. The cylinder and head are in one piece, features include wide rear hubs, jockey pulley adjustment for the belt and an excellent cable brake. **Hurtu**, Avenue de la Grande Armée, exhibits a motor-bicycle on conventional lines except that the tank is cased in with wood. The motor is of 2½hp with tapering □öange sandis□öxed in a loop in the down tube, the main support being near the bracket à la 'FN'. The cylinder and head are made in one piece, and a spray carburetter and belt drive are used. The **'Pecourt'** exhibit boasts a good display of standard road machines □öttedwith4hp vertical Zedel engines. In some cases the coil is □öxed on the horizontal tube. These machines have two brakes, one acting on the rear rim, and one on the hub. The wheel base of the Pecourt miniature motor-bicycle is unusually long. This 'Moto-



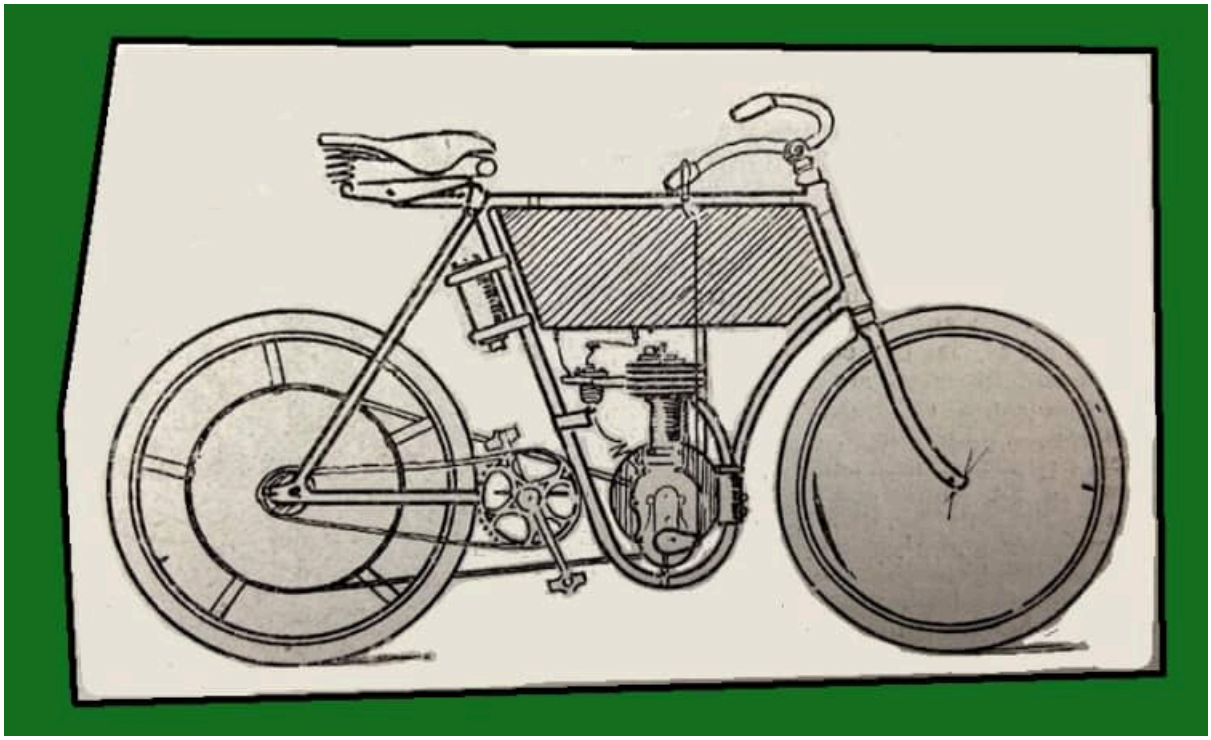
"The Pecourt Motor-Bicycle."

Cardan' machine has a direct drive by means of a Cardan axle, very similar in fact to the transmission on a car; the motor is arranged across the plane of the machine. This type of machine is interesting from the fact that in some of the recent French motor-bicycle competitions it has done remarkably well. The mudguard equipment is better than on many French made machines. **Ciguet Frères**, Paris. A smart 4hp motorcycle is worthy of careful inspection here. The exhaust valve lifter is worked by the cover of the trembler contact breaker, and the cylinder and head are in one casting. The crown of the forks (girder type) is of a special arched design. **Le Bichrone**, Paris. The Bichrone motorcycles shown here. are similar in every respect to those exhibited at the Stanley Show. It will be remembered that the special feature of the Bichrone motor is that it is a two-stroke type, with separate pump for the inlet, and has an external □ðy-wheel. It is fed by a spray carburetter and has a wipe contact **Debaralle**, Argentieul, are exhibiting a particularly neat two-speed gear machine. The transmission is by belt with a 6in pulley on the motor and thence to a slightly larger one on the rear hub. The gear is contained in a box on the hub and is actuated by a □öngerlever on the handlebar. The motor is of 2¾hp. Another originally designed machine has a V-belt drive and a compact free clutch: it has two substantial band brakes. Still another machine on this stand has a single chain drive and free engine clutch in the rear hub. The **Georgia Knap**



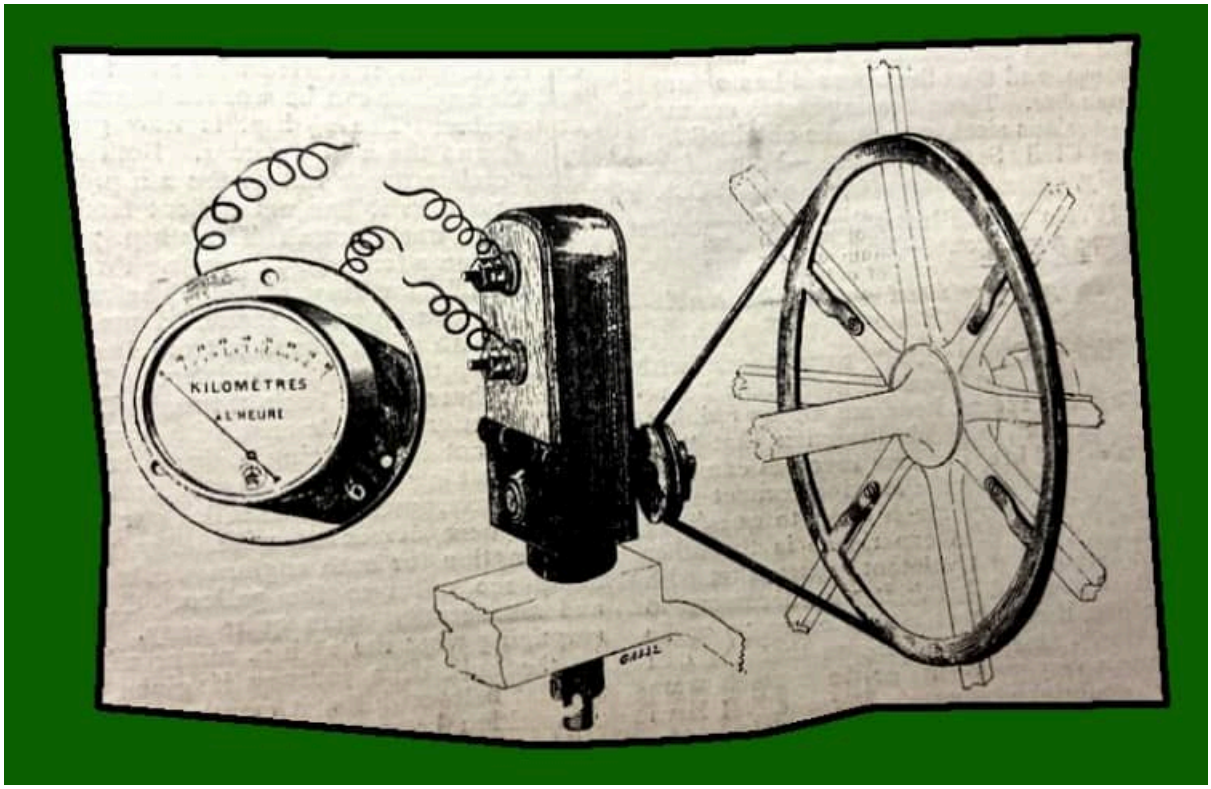
“Motor-Bicycle shown by Georgia Knapp.”

exhibit is always an interesting one. The motor is □ðxed on one side of the rear wheel and drives by gear and pinion, with spring buīers on the rim of the gear wheel. This make of machine is one of the very few □ðtted with surface carburetters: the gas is carried to the motor by a large diameter □ðexible tube. There are two rim brakes □ðtted and duplex front forks. To withstand the strain of the direct drive very strong spokes are □ðtted in the rear wheel. Several powers of motor of the air-cooled type are □ðtted. **A Lambert et Cie**, Paris. A weird-looking pedal-less belt-driven 8hp racing machine causes one to pause at this stand. The machine (the frame of which is enamelled in red) is the one which created a world’s record between Paris and. Arras, the distance covered being 216km (134 miles) and the time occupied only □ðve hours. The spirit used on this occasion was alcohol, and it proved so economical that only two litres were consumed on the journey [252mpg]. A free engine is obtained by slipping the belt from the driving to a free pulley by means of a lever—this, is hardly good practice, for the belt gets considerably out of alignment, and as the belt rim is very narrow there must be a tendency for the belt to rise over the □ðanges causing undue stretching. The inlet valve is mechanically operated, and the control gear is exceedingly simple. The machine is somewhat ungainly, but its speed powers are remarkable, and after all a racer is built for speed. it is constructed by Lamaudiere and Co, Levallois. It is notable that some French makers use air-cooling for such a high power motor, and with a minimum of radiating surface. **H Petit**, Rue de Vaugirard, Paris. A two-speed gear machine is to be found on this stand. The crank case



"Two-speed Gear Motor-Bicycle shown by Petit, Paris."

is of a very deep section and the change gear is concealed therein, being actuated by a lever on the top tube; the gear also gives a free engine. The motor has a one-piece cylinder and head with an outside □öy-wheel. The maintube of the frame is bent into a deep U-section. A spray carburetter, high tension ignition and belt drive are used. **Bailleul**, Levallois, have a □öne 3hp motor-bicycle with water-cooled cylinder, the jacket being of aluminium pressed on. The inlet is mechanically operated, and a free engine clutch is provided in the pulley. The drive is by a □öat belt on to a built up wood rim. The inlet and exhaust valves are both □öttedinthecentre of the bead, and are arranged concentrically with each other, the operating rod for the exhaust being hollow, and having a central shaft through it to work the inlet. An inspection port and compression release is provided in the head. This machine is distinctly original in design. Specially good is a band brake on the rear hub worked by a Bowden cable. The cooling water is carried in the forward part of the tank, and an extra large capacity for petrol is provided. All the regulating levers are mounted on the top tube. The usual high-tension ignition is used, and the □önishisabove the average. Folding cranks are □öttedtothis machine. **Cycles Liberator**. On this stand is exhibited a machine to all appearances identical with the Kerry motor-bicycle, which is so popular in England. The motor is 2¾hp, □öttedverticallyin a loop frame. **Lamaudiere, Mauger et Cie**, Rue des Arts, Levallois-Perret, Seine, now make a 4hp engine, □öttedverticallyin front of the bracket, and specially designed for racing: this machine has an immense □öy-wheelanda two-speed pulley. The 2¾hp machine is also made in a vertical pattern, in addition to the type in which the motor forms part of the down tube. A novel type of carburetter is used, and a jockey pulley for tightening the belt and freeing the engine. All the machines have triple fork crowns. "**Messrs Chauvinet Arnoux** have an interesting electrical speed indicator on view: this consists of a miniature dynamo with steel magnets, driven by a small belt from the axle of the car. The current then passes through a hot wire voltmeter which gives a reading exactly in proportion to the speed of the car." **P Bruneauet Cie**, Tours and Paris, exhibit a fore-

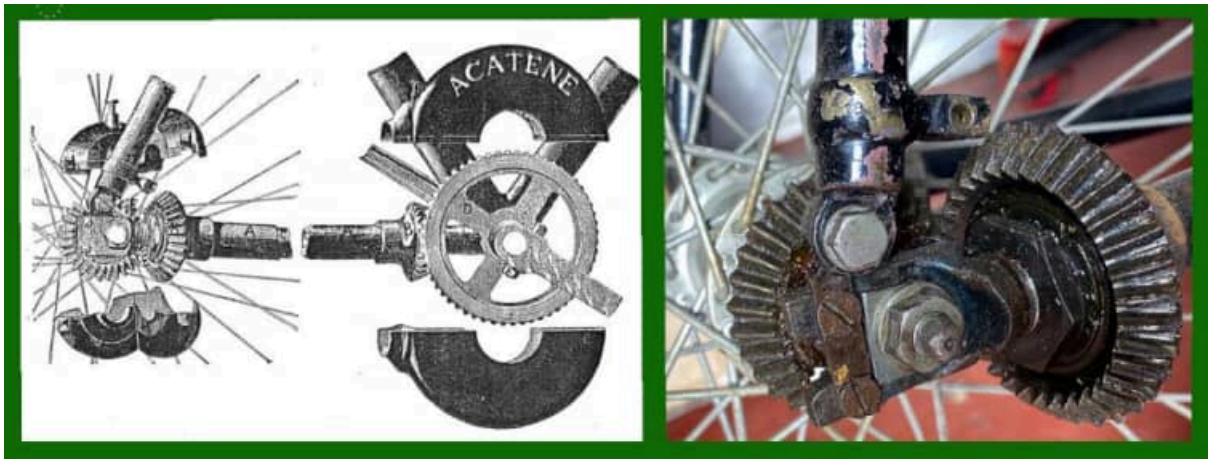


"Chauvin & Arnoux's Electrical Speed-Indicator."…andyou thought electric speedos were a 21st century innovation (well ok, maybe you didn't, but I did).

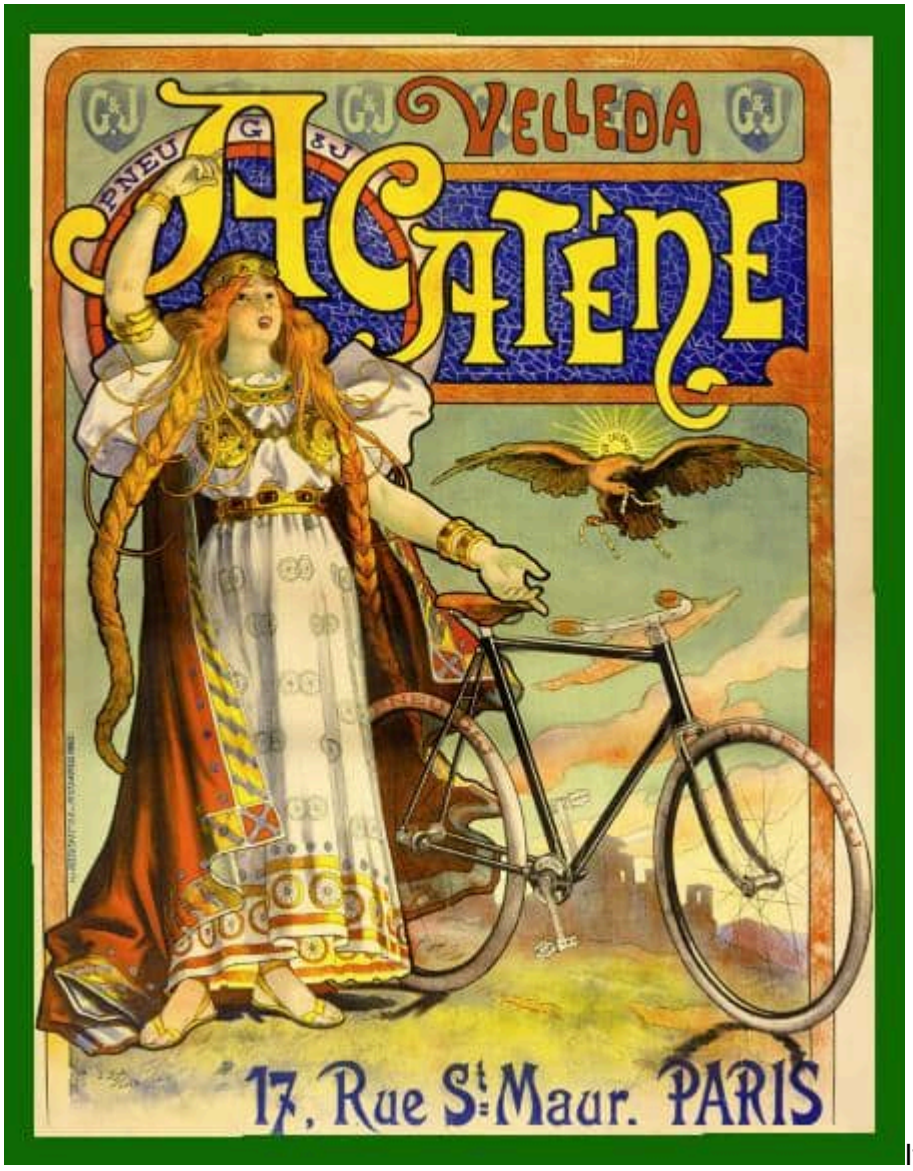
carriage with chain transmission and free engine with water-cooled head. A centre of interest on this stand is a gear-driven machine. The engine gears on to a large cog-wheel, and inside this is a bevel wheel driving a shaft through the rear tube, and thence by bevel gear to the hub, exactly as in the gear-driven bicycles so popular a few seasons ago. Inside the large chain wheel a series of spring buīers are □ðxedtotakeupthe shocks. Thesmall pinion on the engine shaft is driven through a friction clutch operated by a lever on the horizontal tube; all the gearingis enclosed in aluminium cases. A standard pattern of chain-driven machine is shown, some being □ðttedwithwater-cooled heads. **La Metropole**, Rue St. Maur, Paris, have a motor-bicycle of light construction with a 1½hp motor placed vertically in the angle between the two main tubes. The petrol tank is □ðxedbehindthesaddle, and the coil and accumulator are clamped to the down tube. Thedrive is by a twisted belt. Theexhaust lifting gear is of a curious type, being carried on a separate bracket. Another feature is that the carburetter is placed very close up to the inlet. The pedal gear on this machine is of the Acatene bevel wheel and shaft type*. Thereis also a double band brake, and duplex front forks are □ðtted."

* I hadn't come across the 'Acatene' bevel before so I looked it up. According to onlinebicyclemuseum, and they should know: "L'Acatene of the Metropole company, dating from 1893. TheAcatene-Metropole was on the market from 1896 onwards and in□ðuencedthe British market when Humber marketed it in 1897 under licence. Both American and British inventors patented chainless bicycles but, despite their revolutionary design, the American 'League' Chainless and the English Quadrant were not popular enough in their respective countries to warrant full-scale manufacture. France's Acatene was therefore the □ðrstchainless bicycles to go into full production, followed by the FN in Belgium. TheLeaguewas beset with problems and it was not until Colonel Popeof Columbia purchased the American rights to the bevel-gearpatents of both Quadrant and Metropole that he was able to create a satisfactory American chainless bicycle, which became his most promoted model. Female versions of the

Metropole Acatene were marketed under the Acatene, Metropole and Velleda names. The company's most famous advertising poster showed the Germanic priestess Velleda who, like Boadicea in England, was a legendary leader of an uprising against the Romans. Both were immortalized by the Roman historian Tacitus. The bird of prey next to her is carrying chains in its talons, and the Latin motto 'Vae Catenis' or 'Woe to Chains' is displayed in the sun above its head." Another reminder, if such were needed, that pedal and motorised bicycles were inextricably linked—Humber, Pope, Quadrant and FN were at the heart of the motorised bicycle revolution.



The Acatene bevelled to the Cardan drive and generations of shafties including, in my case, a Guzzi California II, a Beemer R90/6, a Honda CX500C, two Yammy XS110s and, currently my Suzuki GS850 combo.



It is a fabulous poster—and now you know the signi□ðcanceofthe eagle with the chain.

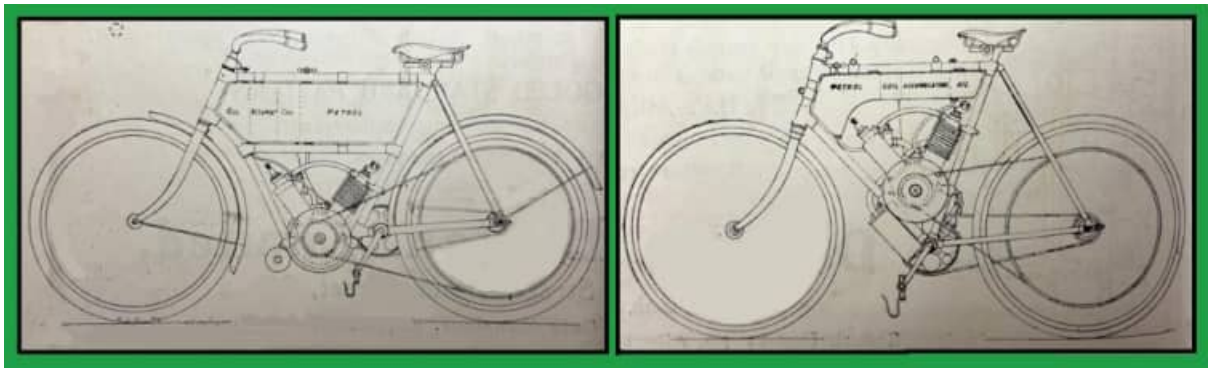
The **Societe Anonyme de Constructions Mechanique de la Loire** has two of the □ðrm's Automoto machines on exhibition. One, a 3hp water-cooled type, with a belt drive, is a particularly attractive motor-bicycle. The water jacket extends round the cylinder and valves. The latter, which are mechanically operated, are placed in a very accessible position. The sparking-plug is screwed into the top of the combustion head in a vertical position, and the carburetter is of the □ðoatfeedtype. The water tank is cooled by an extremely neat design of radiator. This really forms a part of the main tank, and is □ðttedjustbehind the head of the frame. The feature of the machine is the combined driving pulley and clutch, which provides two speeds and a free engine. The machine is powerfully braked, and has the advantage of being easily controlled. On the stand of **Hurtle-Bruneau**, 38, bis Rue de la Chine, Paris, is to be seen what is probably the lightest motor-bicycle ever designed, the weight complete being 48 lb. The engine although of toy-like dimensions, has been most ingeniously designed. The cylinder is simply a piece of steel tubing of 1¾ in diameter with the exhaust valve □ðttedattheside, the plug opposite, and the inlet valve at the top. The tubing is simply pressed into shape; the drive is by belt, and the petrol tank, coil and accumulator are □ðxedtothetubes by detachable clips. The engine itself has many interesting features, designed. The cylinder is simply a piece of steel

tubing of 1¾in diameter with the exhaust valve □ðttedattheside, the plug opposite, and the inlet valve at the top. Thetubing is simply pressed into shape; the drive is by belt, and the petrol tank, coil and accumulator are □ðxedtothetubes by detachable clips. Theengine itself has many

"A 48lb Motor-Bicycle shown by Hurtle-Bruneau at the Paris Show."

interesting features, particularly in the valve gear, etc—no silencer is used, the exhaust blowing straight out of the cylinder into the air. Thepower cannot be more than ½hp: this looks an ideal little motor for □ðttingtoanordinary pedal cycle for assistance against the wind and uphill, and is the thing that many cyclists are looking for. A gear and chain-driven machine of 2½hp is shown by **E Gentil**, Neuilly-sur-Seine. Thesystem of driving is by a small pinion on to a large gear-wheel on the left side of the pedal crank axle; this gear-wheel has a series of springs arranged between the rim and centre, and drives a hollow axle carrying the ordinary pedal chain-wheel on the right side, from whence the drive is by the pedal chain to the rear sprocket. Thefree-wheel is □ðttedin the crank shaft bearing. Therewere three belt-driven Adler motorcycles, of German make, on the imposing stand of the **Adler Fahradwerke**, Frankfurt. TheAdler machines have a good reputation on the Continent, and are fairly well known in this country. Thebest machine of the three was undoubtedly the 2½hp water-cooled type. Theengine is rigidly attached to a strongly built frame in a vertical position. Themechanically operated valves are placed side by side at the top of the cylinder, and being well away from the tanks are very get-at-able. Thewater jacket covers both the valves and cylinder, etc. At the stand of **H Deckert et Cie** a number of air-cooled motors are to be seen, including one of 10hp. A remarkably high-powered engine for one that depends on the atmosphere for cooling. This motor, by the way, is governed on the exhaust. A 5hp racer is also shown. This an exceptionally large spray carburetter, torpedo-shaped brass tank, which carries everything with the exception of the coil—this is placed on the top tube of the frame.

“THE BICHRONE.RECENTLYAdemonstrationof the excellent hill-climbing capabilities of this ingenious form of two-cycle motor was given before several press representatives in the neighbourhood of HighgateHill. A suburban road running parallel to the Archway road was selected, which, from rough measurements taken at the time, we estimate to have aīorded about 300 yards of a gradient of one in 16. This ascent the bicycle, □ðttedwitha a 2hp Bichrone motor, climbed several times in excellent style, its best performance being the conveyance of the writer’s 14 stones from the foot to the summit without a falter. Theengine looks like a two-cylinder motor; but the forward plain cylinder is in reality a mixture pump driven oī a second crank on the crankshaft within the crank chamber. This pump serves to draw mixture from the carburetter and to deliver it through an automatic valve and curved length of pipe to the engine cylinder proper. The gas obtains ingress to the latter through an automatic valve in the crown of the combustion chamber. Between the pump and the carburetter is another non-return valve. Theexhaust port is formed in the wall of the engine cylinder and is uncovered by the piston at the bottom of its stroke, the exhaust products passing through this port to the silencer without the intervention of any valve. The crank working the mixture delivery pump is so set with relation to the engine crank that the pump plunger begins its upward or delivering stroke just before the engine piston uncovers the exhaust port. The result of this is that the incoming charge of fresh mixture chases the exhaust out of the engine cylinder, and the pump continues to deliver gas to the cylinder until the upward movement of the piston has compressed the new charge suīiciently to close the feed valve against the pump, and goes on to perform the further and □ðnalcompressionofthe charge in the combustion chamber. So soon as the piston has reached the point of its highest travel and compressed the charge to the uttermost the latter is ignited, and the working stroke immediately follows. It will thus be seen that a working stroke of the piston is obtained for every revolution of the crankshaft, in lieu of every other revolution, as with the four-cycle type of engine. Whether this makes for eīiciency or otherwise can only be determined by careful tests; but the fact that so small an engine—it weighs only 28lb—could propel our weight up the steep hill in the manner it did speaks volumes in its favour.”



The Bichrone two-stroke proved itself a competent hill-climber.

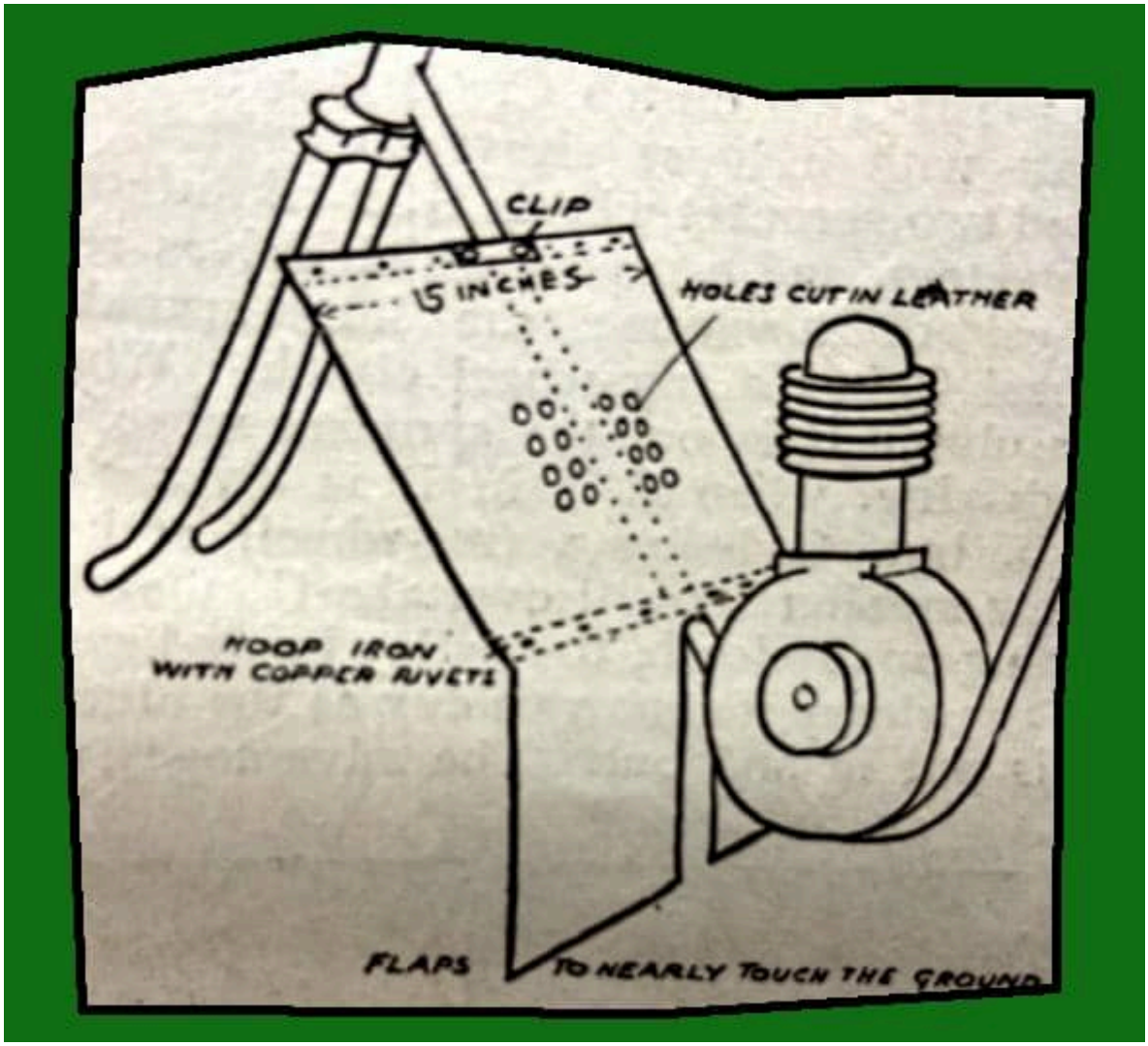
“THE PRIMEDISADVANTAGESOFallour existing macadam roads are susceptibility to wet and other climatic in□ðuences,withconsequentlack of durability, cost and labour of repair, and dust and mud producing qualities. Wood paving is costly, unhealthy, and non-durable; whilst the various forms of asphalte roading are both expensive to lay and maintain, as well as dangerous to all forms of traīic under many conditions of weather. Theimproved method of road-making employs stone—preferably granite—and tar laid on a concrete bed and topped with a coating of tar, cement and gravel. It is claimed for a road so constructed that it embodies the following advantages: great saving in cost of construction; perfectly sanitary, the road being water-tight; easily kept clean; dries quickly after rain; horses never slide; makes absolutely no dust; takes

less time to make than stone pitching or wood blocks. In St Helier, Jersey, roads have for some time been laid out on this system, and are apparently giving every satisfaction."

"LANCASHIRE MOTORISTS ESPECIALLY will be interested to learn that Messrs Whittaker & Co, St Mary's Works, Lower Broughton, Manchester, are now making a very good grade of petrol selling at a very reasonable □ðgure."

"MY FIRST MOUNT WAS a 3hp single-cylinder, well-known make, and this, although a good machine in other respects, used to overheat terribly when used with a side-car. On every hill it needed pedalling, and the exertion was too much. I therefore decided that water-cooling was necessary, and so purchased a twin-cylinder water-cooled Iris motorcycle. I have never regretted my decision. The absence of vibration, smooth running, and freedom from trouble give a charm to motoring that I never experienced before. I think the average rider, after once riding a double-cylinder motor, would be of the same opinion as myself; and I fully expect this type of engine will speedily be-come popular.
CS."

"FOR RIDING IN WET WEATHER, procure a large piece of patent leather, fasten it between the down tube and the engine (as in Minerva and Quadrant types) and then cut out in front of the engine head about 16 holes the size of a shilling. The engine is thus well air-cooled, and the original mudguard in front of these holes keeps the mud from coming through. I have ridden 70 miles in the dirtiest weather and come in with boots and legs □ðt for a drawing room; the feet are also kept warm. I use it daily and motor never overheats. The □ðap is stiīened and supported by riveting two lengths of loop iron along the top and about the lower third; the top has these holes bored through to take the thumb screws and clip.
A Fennings, MD."

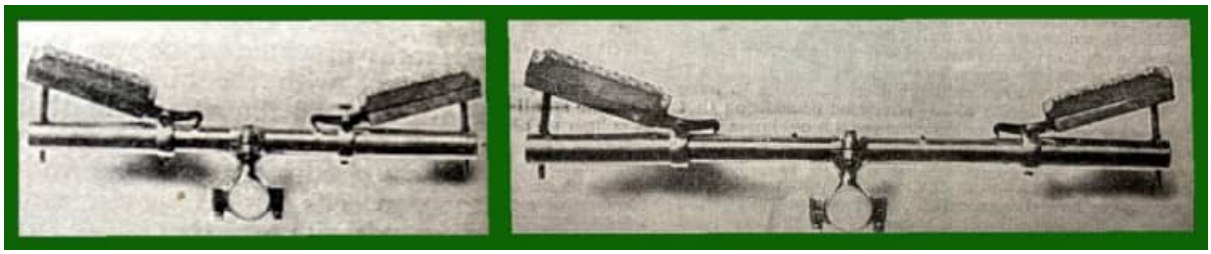


Designed and used by a hard riding GP: the prototype of legshields and the □ðrstexampleof weather protection equipment. Well done, doc!

"THAT THEMARGINOF SAFETYinhigh-powered motorcycle racing has almost been reached, if not passed, in England, has already become evident from the severalserious accidents which have occurred, owing to the rider's inability to control the machine and keep it from skidding up the banking. To the untrained eye it may appear quite easy to steer a motorcycle round a highly banked track; and to the spectator the day when a speed of 70 or 80mph will be accomplished is easy of imagination. The opinion, however, of experienced riders such as Fred Chase, his brother AA Chase, Harry Martin, or Josephvan Hooydonk is clearly to the contrary, and they all agree that the limit of speed for existing British tracks has almost been reached. Chatting with AA Chase on the subject, the writer asked him his opinion, and he puts the □ðgureat1min4sec for the limit of speed at which the mile will be accomplished, and then at considerable risk, taking Canning Town as the □ðnestandmostsuitable track. Fred Chase, thinks that 1min 2sec may be accomplished; but inside that the rider, whoever he may be, will run the life hazard in the endeavour to keep himself and machine on the track, and from collision with the fencing at the top of the banking. In view of their years of experience in fast track riding, the opinions of these men are worthy of the fullest attention from would-be record breakers who value their necks. Messrs Martin and van Hooydonk alas consider 1min 2sec for a mile about the fastest pace attainable with the banking at present used on English tracks: faster time is only a

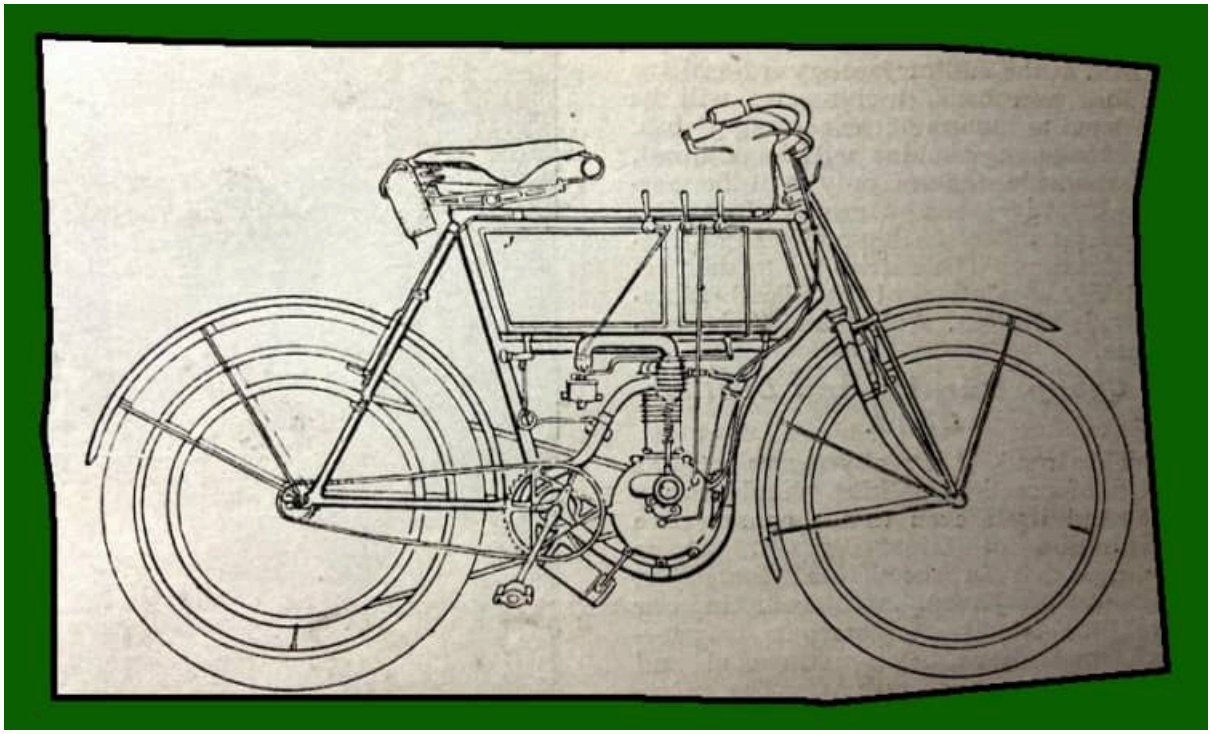
question of engine power, gearing, and banking; as there are plenty of machines already capable of higher speed if the rider dared let the engine out to its best."

"A PATENTED TYPE OF telescopic footrest for motorcycles have just been put on the market by A B Clark, engineer, Curfew Ironworks, Sandwich. The special features of this invention are that the ends of the rest having the rubber covered foot plates □ðttedtelescope into the main tube, which is provided with a clip to □ðtthedowntube of the motorcycle. The foot plates are mounted on springs so as to absorb vibration, and a trigger attachment is combined with them, so that by slight pressure on the plates the telescopic ends are forced out by internal springs, and thus the rider's legs are kept clear of the engine. When the footrest is required to be out of the way it is only necessary to apply slight pressure to the ends, when the tubes collapse to normal dimensions. Those riders who □ðndtheordinary pedals as □ðttedtomost machines somewhat tiring will be specially interested in this invention, which should prove a satisfactory rest. It is a well made and □ðnishedarticle, and the retail price is 22s."

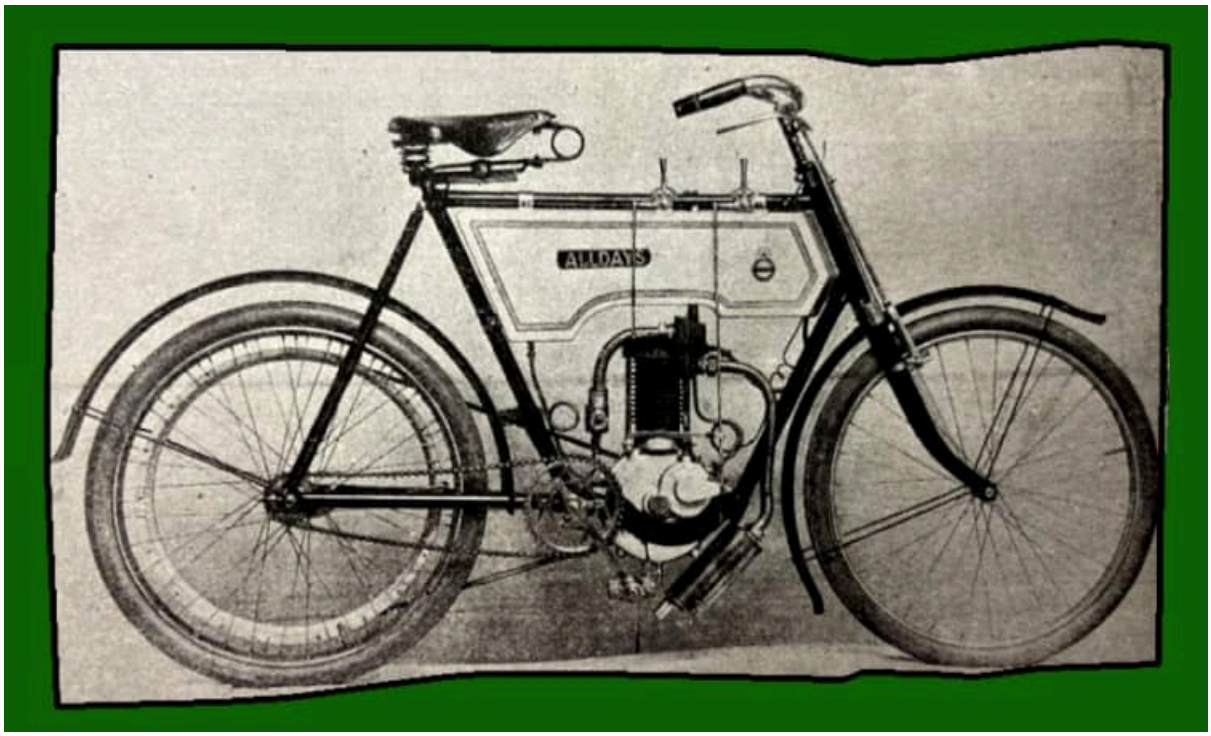


The Curfew Ironworks telescopic footrests could be extended at the touch of a trigger.

"MESSRS W A LLOYD'S CYCLE Fittings, Park Street, Birmingham, have introduced several important improvements into their new model motor-bicycles. The bore and stroke of the 2¼ and 3½hp engines are respectively 71.4×76.2mm [305cc] and 77x82mm [384cc], developing full power at 1,400rpm. In each case the engine is □ðxedverticallyina loop frame. The cylinder and valve chamber are of one casting, the inlet valve being of the automatic type. An exhaust valve lifter is employed, and is operated by a Bowden wire from the handlebar. The lever actuating the wire has two notches, and by lifting the lever to the □ðrstnotchthecontact is broken without the valve being opened so the engine may be used as a brake. By moving the lever to the second notch the exhaust valve is opened and the contact broken."



“The 1904 Lloyd Motor-Bicycle.”

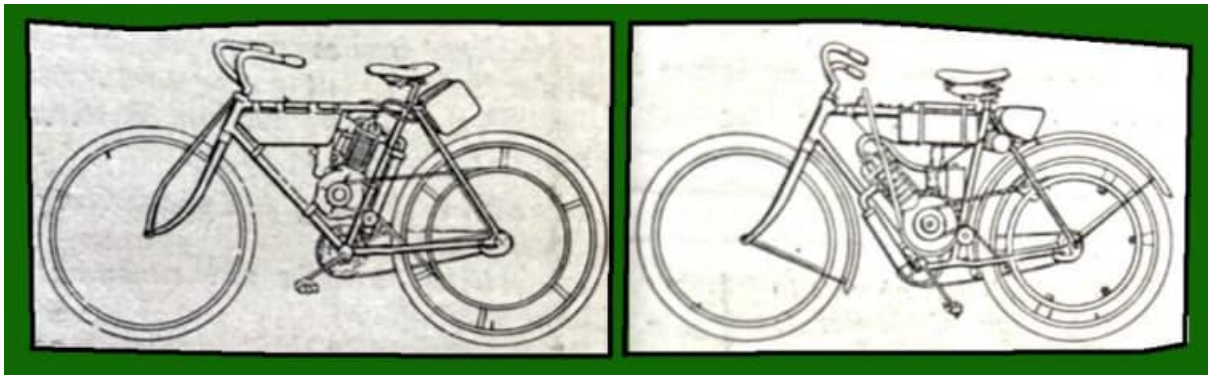


“Messrs Alldays & Onions’ latest 2¼hp motor-bicycle has a high-speed trembler coil, a □ðoat-feed spray carburetter and an exhaust valve lifter. Suīicient petrol can be stored to cover a journey of 160 miles, and lubricating oil for 250 miles. All parts are made to gauges and are interchangeable.”

“MOTORCYCLINGINGERMANY.The‘First Berlin Motor Cycle Club’ has decided to join the German Cyclists’ Association (Bund) in view of the latter’s special privileges to members in regard to insurance against liability and accidents, on the condition that the committee of the association □ðndways and means of enabling members of ‘Association’ clubs to count also as

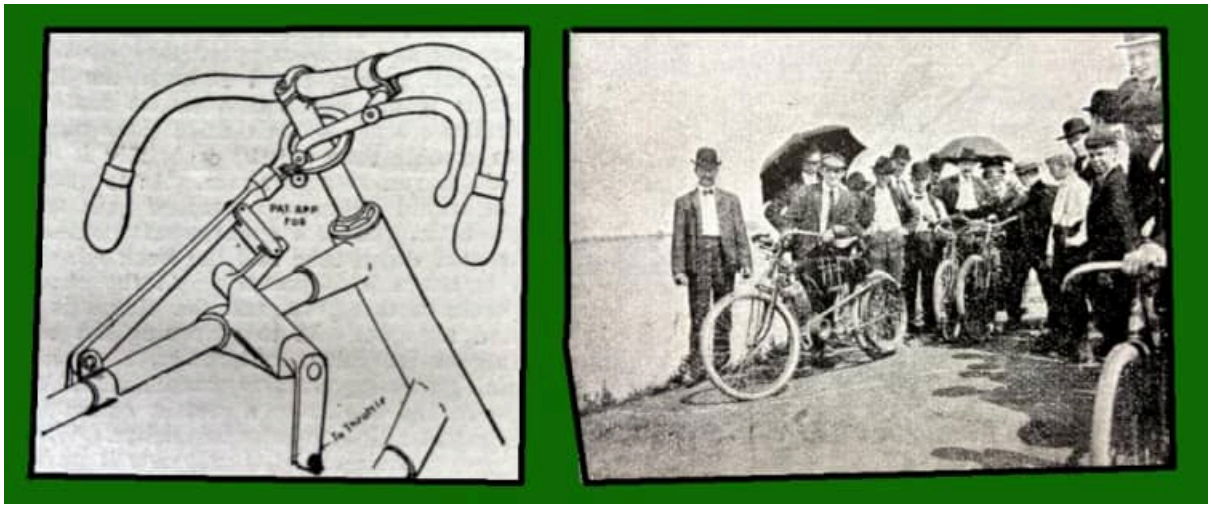
full members in a motorcycle club aīiliated with the Bund. Herr Eugen Glombitza (secretary of the Berlin branch of the Bund) and Messrs Lange, Schindler and Wallner, all well known Berlin amateurs, have the negotiations in hand. "

"A NUMBER OF THE 1904 MODELS of American machines are now on the market. The 'Black Diamond' motor-bicycle is made by Reeser & Mackenzie, Betz Buildings, Philadelphia. This has a vertical engine □ðttedinaloop frame, driving by a chain □ðrstontoa countershaft and thence by another chain to the rear wheel sprocket. The frame outline is rather a symmetrical one, the petrol tank and coil being carried by the top tube of the frame. The ignition, as is usual on American machines, is by dry batteries carried in a case □ðxedbehindthesaddle. The make-and-break device of this machine is an imitation of the Garrard-Max □ðeldpatent, but probably the most striking detail is the controlling device worked from a handlebar lever so constructed that the steering has complete freedom throughout a circle. There is a system of several levers ending in a ring through which the handlebar stem passes. There is a special feature about the inlet valve of this machine, this being used for relieving the compression and also for being automatically moved from its seating when the machine is stopped, and thus preventing the valve gumming or sticking. A spray carburetter of the mixing valve type is used. The total weight of the machine is 130lb, motor 391b, and having a cylinder 2⅝x3⅜in [303cc] is about equal to 2½hp. The petrol tank holds more than one gallon. To facilitate adjustment of the pedal chain and



"The Whipple." (Right) "The Mayo."

driving chain, both of these are made of the same length by suitably designing the sprockets. The only brake □ðttedapparentlyis a 'Coaster Hub' pattern. The 1904 'Mayo' machine has the motor of 2hp mounted inside the frame, the diagonal tube being taken further back from the bracket than is usual. The belt drive is comparatively short, but to compensate for it the pulleys are large and a lever adjusted jockey pulley is used for tensioning the belt. The coil and dry battery are mounted behind the saddle pillar. A spray carburetter is used. The weight is claimed to be only 90lb. The rims are steel and tyres are G&J pattern—practically the same as our Clincher tyres. The 'Whipple' machine is made by the Whipple Cycle Co, W Jackson Buildings, Chicago, and is rather a neatly designed mount and comes out at the reasonable □ðgureof$120 dollars (£25). The special features about it are a two-speed gear and clutch only adding 6lb to the weight, engine arranged inside the frame, spray carburetter, duplex forks, exhaust taken behind the saddle pillar, belt drive with jockey pulley adjustment and Coaster Hub brake. The ignition is by dry battery and coil carried in a case behind the back stays. The petrol tank which appears to be of small dimensions is □ðttedintheforward part of the frame. The lubrication is eīected by a sight-feed oil container screwed into the crank case. The makers claim that this machine is equal to doing 25mph and climbing any hill on the low gear."



"The 'Black Diamond' Handlebar Control System." (Right) "A Motor-Bicycle Meet in America."

"THE ANNOUNCEMENT THAT there will be a competition, for devices for the prevention of side-slip organised early in the New Year by the Auto-Cycle Club will be heard with somewhat mixed feelings. We are all of us anxious to learn about the qualities of the non-slipping devices already on the market, and to encourage inventors to come along with others, but can anybody suggest a really satisfactory method of testing them? For the test to be of any value at all it most be thorough; and to be thorough will involve a great risk of life and limb to the demonstrators. The records of science show that the inventor is always so buoyantly con□ðdent of the soundness of his method and the perfection of his instrument that he scoīs at the idea of danger, so the Club will experience no trouble in □ðnding drivers who will undergo, any risk with their own pet inventions under them; but in the event of a certain method proving a failure and the demonstrator sacri□ðcing his life in a series of tests imposed by the Club, would not the organisers of the competition be liable to prosecution for aiding, abetting and encouraging the man to risk his life? It will be useless to run a series of tests which are 'safe' or only moderately risky to the riders. And, another thing, it will be desirable to show the behaviour of the unprotected machine on the chosen surface, in order that the qualities of the various devices submitted for test may be compared with it. Who is to be asked to show how the ordinary machine side-slips? With cars there is not so much personal risk to the occupants, because the slip is a bodily one, and an overturn is a most unlikely occurrence, but with a motorcycle a side-slip means a fall, and possibly a nasty one for the rider. Moreover, as the surface provided for the tests must be arti□ðcially prepared, its nature will probably be distinctly repulsive, so that the strain on the nerves of the riders may, in a measure, vitiate the tests. However, the idea of organising such a competition is a good one, and the ACC is to be commended on its pluck."

Notes from France.

"THE TRIALS AND RACES of commercial types of motor bicycles being organised in France are a very encouraging sign of the increasing attention being paid by makers to the designing of machines for practical use, and it is due to a Paris manufacturer, M Haustgen, that an hour's race for motor bicycles of 3hp and less is to take place on the Municipal track at Vincennes. This

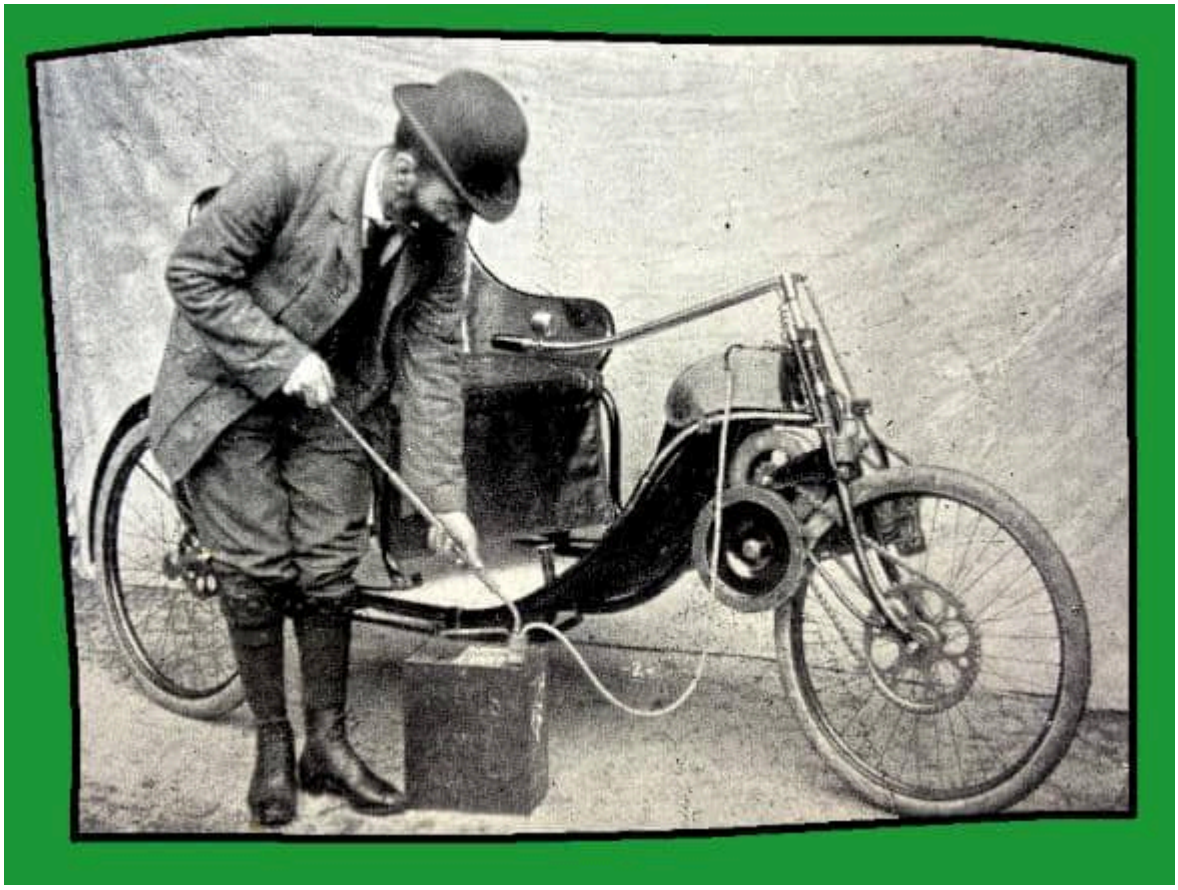
event was to have been decided on Sunday last week. Owing to the large number of competitors, it was found necessary to run oī preliminary heats, and by the time the □ðnal was started, the rain began to fall in such a deluge that the race had to be postponed. The machines competing were a very interesting lot. One of the novelties was the Moto-Cardan, designed with a 1¾hp motor □ðxed to the bottom of the frame, power being transmitted by a universal jointed shaft and bevel gear to the rear wheel. It is □ðtted with a clutch actuated by a fork and Bowden wire. The motor, however, is started by pedalling, but the clutch is very convenient for moving the bicycle about, and also for allowing the motor to pick up, while, of course, it may also be necessary at times to pedal the machine without the aid of the motor. The bevel drive has so often been advocated for bicycles that it is curious so few makers have attempted to use this system of transmission. It naturally requires great accuracy in □ðtting the machine, and also facilities for adjustment, as well as care in construction; but these qualities are nowadays so general in bicycle making that a bevel drive machine ought to give no more trouble to the user than the other types of motor bicycles. The bevel drive machine must be of sound quality, or it will inevitably be a failure. The Georgia Knapp bicycle has been attracting a good deal of attention of late on account of its novel system of propulsion, and it was with considerable interest that we saw it running for the □ðrst time in a race. In this machine the motor is clipped to the back stay, and is geared direct on to a spur wheel on the rear driving wheel. The arrangement, therefore, is extremely simple. M Georgia Knapp claims that it gives a higher eīiciency than is possible with belt or chain transmission, and for this reason the standard bicycles are □ðtted with motors of only 1½hp. The engine is also of M Knapp's own construction. In these direct-drive bicycles, as well as in machines □ðtted with chains, it is usual to provide a □ðexible coupling between the gear and the hub. In the Knapp bicycle this is done by means of spiral springs inside the spur wheel, so that the resistance of the springs prevents any sudden jerking of the back wheel. The V-shape two-cylinder engine seems to be becoming popular among certain makers, for both the Iris and Centaure motors are of this type. The engines were bolted to the curved bottoms of the frame, and there was in fact very little variation upon this method of attachment. One of the engines competing had a water-jacket all down around the combustion chamber and valves. It is easy to understand why motor cycle racing, limited to machines weighing 50kg and less, is becoming so popular on the French track. The novelty is suīicient to attract spectators until they begin to understand the features of motor cycling, and then the interest grows upon them with the competition of new machines, while they see that mechanical eīiciency and skill in driving give a much greater zest to speed contests than is possible in races where everything depends upon the man alone. Nothing could have been more interesting than the races on the Municipal track on Sunday week. The hour event was preceded by a kilometre race run oī in two heats—one for the bicycles of less than 2hp and the other for machines of between 2hp and 3hp. In the former category the Moto-Cardan, ridden by Berger, was □ðrst in 58sec, followed by Stern on a Knapp in 1min sec, the latter beating Lasne on a Lurquin-Coudert by ⅘sec. Among the higher-powered bicycles, the best performance was done by Goīre on a Griīon, whose time was 56sec, and then came Stockel on a Lurquin-Coudert in 1min ⅗sec. Mignard on a Knapp in 1min 2⅘sec, Godefroy on a Fafnir in 1min 3⅘sec, and Méline on an Iris in 1min 4sec.

“Mons Mignart with his Geo Knap motor bicycle, winner of the Haustgen prize for motor bicycles from 2 to 3hp, Parc des Princes Track, Paris.”

In the preliminary heats over 5km for the Prix Haustgen, the Griîon, of Goīre, was again □ðrstin 4min 55sec, and the second heat was won by Bonnet on a Centaure in 4min 59⅖sec. The twelve competitors qualifying for the hour’s race started just when a storm was brewing, and it looked doubtful whether it would be □ðnished in time. The starting of a dozen machines made a great impression upon the spectators, who were very enthusiastic as they spread out in the □ðrstlap, and it really was remarkable to see the way in which the riders took the corners at full speed and the perfect command they had over their machines. At no single moment did there seem to be the possibility of an accident. As soon as the positions could be made out, it became evident that Mignard on his Knapp bicycle was ahead and gradually increasing his lead. The machine was running wonderfully well, and passed the others so frequently that the rider had to keep on the outside to avoid accidents. And then as the race continued the Griîon showed up prominently, and the Moto-Cardan ran with great regularity. At the end of a little more than half an hour rain began to fall, and it was decided to postpone the race. At that time Mignard on his Knapp was leading, having covered 39km 500m in 37min, and was followed 300m behind by Goīre on his Griîon. A Doué, Iris, and Moto-Cardan were in that order…On Friday last another start was made at 9.30am, but a fearful downpour drove competitors and spectators again

under cover. It was not till about 11.30 that the actual start took place, when Bonnel (Centaure) took the lead from Mignart (Knap), who held □ðrstplaceatthe conclusion of the last event. His premier position was short-lived, however. Mignart on his direct-geared Knap passed him, and soon commenced to lap all the other competitors as well. Mignart covered 69km 333m in the hour. Stockel was second, on a Lurquin & Coudert, 64km; Bonnel third, on a Centaure, 60km 933m; Goīre fourth, Griīon, 45km 862m. Themachines were divided into two classes; all the above were in Class 2—engines from 2hp to 3hp. In Class 1 were Doué (Doué), 58km 600m, □ðrst;Berger(MotoCardan), 56km second; Hibon (Doué), 52km 570m, third; Lasne (Lurquin & Coudert), 45km 320m, fourth. Thedistance covered by Mignart (69km 333m) equals exactly 43 miles 100 yards—not bad for a 2½hp engine."

"THE DIRECTOROFTHEPARCdesPrinces track had the idea of interpolating in his recent Grand Prix de la Republique meeting a 'world's motor cycle championship', which would have been better entitled a championship for professionals. Certain promoters are inclined to attach too much importance to the huge machines □ðttedwithenginesof 16 and even 22hp, which can be of no practical utility whatever except for pacemaking. Racesare organised among the professionals solely as a means of providing sensation for the public. Theso-called championship attracted eleven competitors, and the four preliminary heats were run oī previous to the □ðnalcontestover a distance of 5km. The □ðrsttwoheats were won by Champoiseau from Anzani and Kruger, and by Marius Thé from Rigal, who narrowly missed a spill at one of the corners, and as the rain began to fall both of them rode with a great deal of caution. Thethird heat, postponed to the following day, Was the occasion of a remarkable performance by Maurice Fournier, who covered the 5km in 2min 45⅗sec, and rode one lap at the rate of 65½mph. He □ðnishedeasilythreequarters of a lap from Sigonnaud. In the fourth heat A Fossier lapped Colomb, and won in 3min 2sec."



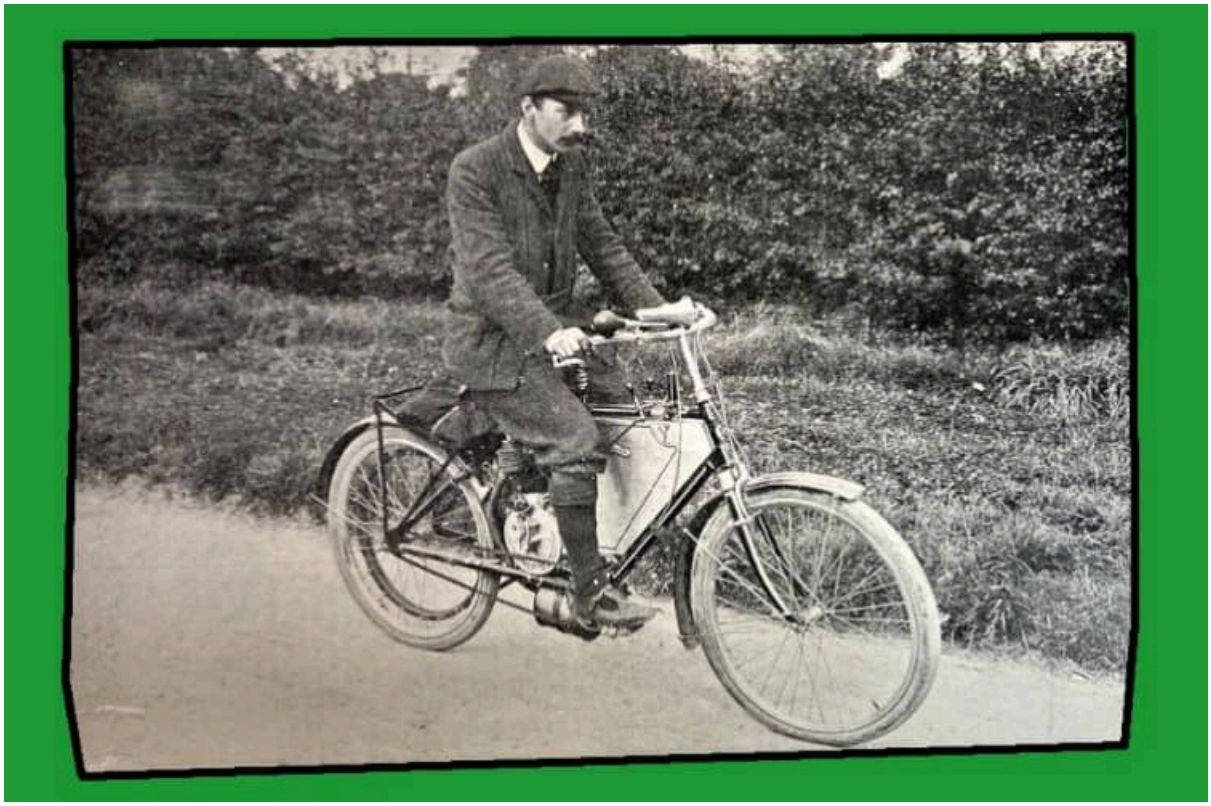
“An interesting device for motor cyclists is the idea of Mr BEDickinson, Toledo Works, Birmingham. As will be seen, a □ðexibleconnectionunites the reservoir and petrol can, when the spirit is easily forced up by air pressure, obtained by a few strokes of the tyre pump, without waste.”

THE MOTOR CYCLE

A VETERAN MOTOR CYCLIST.

“A MOTORBICYCLETHATwilltravel 1,000 miles with little or to attention must necessarily be a good one. But good as a machine may be, the most essential point in all contests this kind is that an expert. driver should sit astride the saddle. Such a man must have skill, nerve and judgment, and be thoroughly □ðtbeforehestarts on such an arduous undertaking. He must thoroughly understand every detail of his machine, and be conversant with every vagaryof the internal combustion engine. Needless to say, great experience is necessary. And there is no doubt that when the Ormonde Motor Co selected Mr ACWright to pilot their 2¾hp motor bicycle through the recent Auto Cycle Club’s trials they hit on the very man for the work. In a talk we had with Mr Wright a few evenings ago he told us that his □ðrstexperiencewithpetrol motors dated from the year 1895, a time when the Serpollet cars burnt coke. Like many motor cyclists, he □ðrst started riding a De Dion tricycle, and at that period he, like most people, regarded the motor bicycle as a very dangerous toy, especially on greasy roads. His □ðrstexperiencesofa motor bicycle were on a front-driven Werner. However, not long after a sample machine □ðttedwitha 1½hp Kelecom line was sent over from Belgium, and this Mr. Wright elected to try. His □ðrst

impressions of this machine were good, and he was especially struck by its steadiness in grease and general satisfactory running. After he had ridden this machine for several weeks, and found that it went well, he decided to enter for the Automobile Club's run to Southsea in 1901. By this time another machine had been sent over from Belgium, but the cylinder on this turning out faulty, he substituted the engine on the □ðrstmachineforthat on the new one. At this period the Ormondes were naturally in rather a crude state, and no lubricator was supplied, the oil being poured into a hole in the crank chamber. But as with this system it was impossible to lubricate without dis-mounting, and as Mr. Wright was anxious to make a non-stop run, he □ðttedona force pump. His ingenuity was well rewarded and he was able to gratify his wishes—except for a broken back-pedalling brake he came through without any other trouble. On this occasion the other two machines present were a Werner tandem and a Phoenix bicycle. His next run of importance was to Dashwood Hill and back—a trip which he accomplished most successfully, and climbed the hill three times, once without pedalling. On the return journey he came back with that plucky rider the late JAdams, who, though his back tyre was □ðat,ignoredsucha detail, and drove home at no small speed on the rim. Last year in the 650 miles reliability trials, Mr Wright found the 1¾hp Ormonde a most reliable machine, his only trouble being a defective sparking plug. His tyres were never in □ðatedthroughoutthe trip. During this time on one of the runs he accomplished a feat which ought to please the most hostile policeman; he covered near Arundel the distance of 200



"Mr AC Wright, the rider of the Ormonde motor bicycle, which was awarded a □ðrst-class certi□ðcateinthe recent 200 miles trial."

yards in seven minutes. Our readers will remember that during these trials cars and cycles ran together, and the driver of one of the former—a Wolseley—which he had been following closely, found that he had been exceedingthe speed limit, and by letting his clutch slip covered the two hundred cards at a crawl. So Mr Wright caught hold of the car. Thusboth avoided loss of marks by not arriving too early. During the Westerham hill-climb, as he found that this severehill was

too much for the little 1¾hp engine, he left the saddle and ran beside the machine, letting it climb the hill under power. This, however, was counted against him. On the last day but one his lubricator failed him, but be was not to be done—taking a. box spanner he unscrewed the apparatus and removed the automatic part, never leaving the saddle all the time The next event of importance in which Mr Wright took part was on the occasion of the Automobile Club's anniversary run to Oxford, when he again came through with □ðying colours. As many of our readers no doubt remember, it was a pouring wet day, with roads in a □ðlthy condition, and on one of the greasiest portions of the trip poor Adams skidded sidewise down a hill without losing his balance. On this run Mr Wright rode the same 1¾hp machine which behaved so well in the 650 mild, trials. Next after this carne one of the most memorable events in the history of automobilism—the ill-fated Paris-Madrid race. As in the case of more than one of the makes entered, the Ormondes were □ðnished only two days before their riders left Newhaven, and on their arrival at Dieppe they had to wait two days and go through all manner of insane formalities before they were allowed to proceed to Paris. During these troubles Mr. Wright discovered that palm oil did much to simplify matters. Once started things seemed to go better, and he expressed himself delighted with the beautiful scenery of the Seine Valley, the excellent roads, the easy gradients, and the hospitality and good accommodation oīered by the inhabitants. With the exception of one puncture—a really had one—which Hacking had on Gaillon Hill, all went smoothly till Paris was almost reached, when 10km of pavé had to be covered. Never in all his wide experience had he ridden over such an awful surface. And it is hardly to be wondered at that on his arrival in Paris he discovered the frame of his machine was buckled, and he was forced to use a strange mount for the race. How he fared and how his only troubles were due to tyres is now a matter of history. It is enough to say that he covered 350km, and, worn out with worry from continually repairing and renewing this most unreliable portion of the machine, and overcome by the intense heat, he retired from the contest. Mr Wright's performances in this year's 1,000 miles trials we were able to watch for ourselves, and they are now well known to all." You'll ĭnd comprehensive coverage of the Auto Cycle Club 1,000 Miles Reliability Trial in the features section—Ed.

"WE OBSERVE THAT OUR interesting contemporary La Locomotion publishes a very useful article on repairing water-cooled heads by a Monsieur Jules Garnier which may be of use to owners of motor cycles. The cracking generally happens in winter, in consequence of ice being allowed to form in the water-cooled heads of motor cycles, the expansion of which causes the cracking; but it also has been known to occur through other causes. M Garnier tells how he has succeeded in cementing cast-iron by using a mixture of sulphur, iron □ðlings, and salammoniac, but adds that in the case in question the □ðssures were too small to allow of this method being employed, the cracks being so minute that only a liquid would penetrate. To condense his description, the idea came to him to employ the well-known property which the salts of copper possess of depositing their copper when brought in contact with iron. He therefore prepared a highly saturated solution of sulphate of copper with which he □ðlled his cylinder head, thus allowing the liquid to percolate through the cracks until they were entirely sealed up. He tells how the experiment was an entire success, and adds that it saved him the cost of a new combustion head."

“RELIABLESINGERS.21,939MILESin 14 months on a Singer motor tandem tricycle and a Singer2½hp motor bicycle is really a wonderful performance. Theabove distance has been covered by Dr HP D’Elsey Benson, of Guernsey, while using the two Singermotor cycles mentioned, and they both continue to giveeverysatisfaction. We do not think any further test of reliability should be required to convince prospective purchasers that Singermotor cycles will do all that is claimed for them by the makers.”

“PATRONSOFTHECANNINGTown track will have a few more opportunities of seeing some of the crack French racers before the season closes. At the end of the month the star attraction is likely to be a three-cornered pursuit race between two French riders and a prominent English crack. Evidently motor cycle racing is proving an attractive draw at the east-end track.”

“IN COLDWEATHER,ESPECIALLYifthetemperature is approaching near freezing point, diīiculty will be experiencedin drawinga chargeof oil into the pump, if the oil is at all of a thick bodied nature; in fact, nothing less than thawing the oil, by detaching the reservoir and warming it in front of a □ðre,orapplyinghotwater ragsto the outside of the reservoir, will cause the oil to □ðow.Thediīiculty, however, is overcome if a thinner oil be used therefore it is advisable to use a lighter bodied oil during the winter months.”

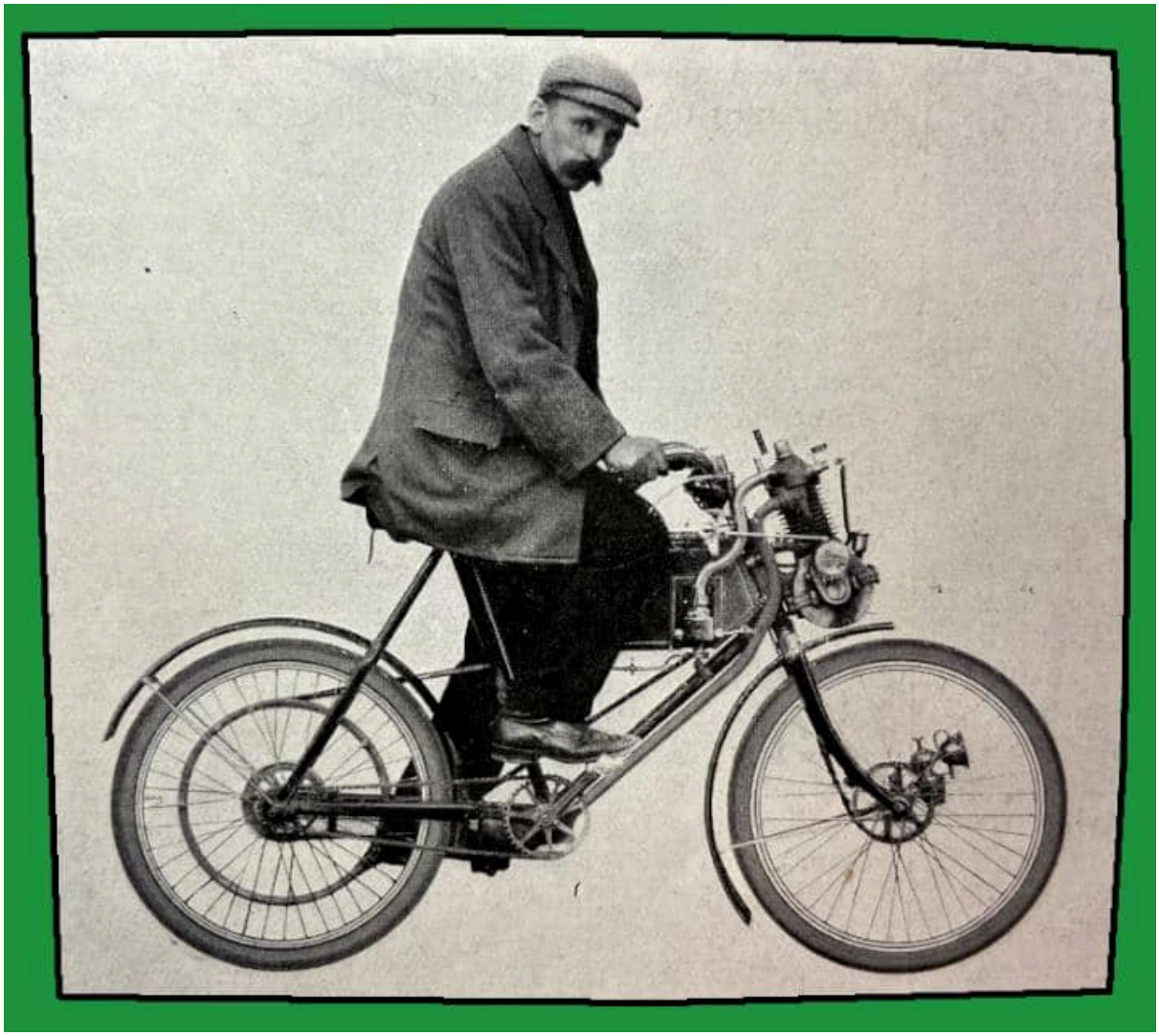
THATTHEQUESTIONOF□ðttingtwo-cylinder motors on motor bicycles is one which cannot be ignored was proved conclusively, when the winner in the motor cycle class at the Côte de Latfrey Hill Climb, riding a motor bicycle of under 102lb weight, provided with a two-cylinder Clement motor, romped up and won at a speed of over31mph, and that on a declivity havinga mean gradeof nearly one in ten, and we may also add that this was done from a standing start.”

“IT IS A MATTEROFREGRETthataslittle attention is being paid to the motor tandem—a combination which, in certain respects, promises distinct advantagesovera motor cycle with a trailer or fore-car. Thereshould be some demand for a tandem attachment provided with saddle, handle-bar, and rests, as a good many machines are well designed to carry a second passengerin this manner. It would impose a slight extra strain on the rear wheel and tyre, but a well-built wheel should be equal to the extra load. We have already seen one or two motor cycles thus converted into tandems, and were rather favourably impressed with the idea. Certainly, on the score of cost at any rate, a tandem attachment has much in its favour.”

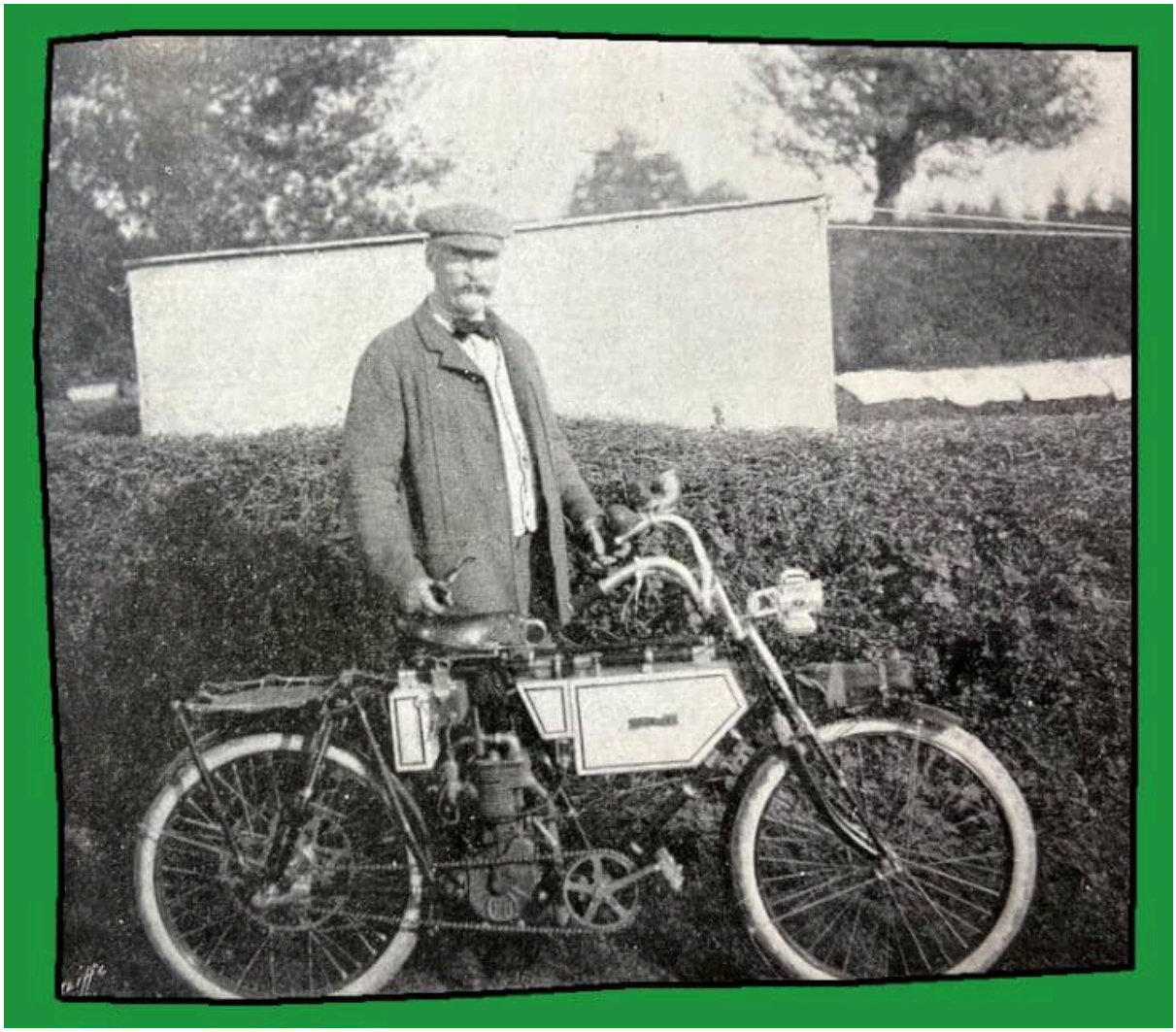
“WITH THEPOWERFULENGINESrangingfrom 2¾hp to 3½hp which some of the best makers are now □ðtting,andalsoprovided that a really good carburetter is used, then, in my humble opinion, pedals are entirely unnecessaryon a really good up-to-date motor bicycle; nay, I will go further, and venture to predict that in two yearsor less very few high-class makes of motor cycles will have them □ðtted.Ihavenot been led to form these conclusions hastily, but after

mature deliberation, founded on the experience of over 10,000 miles of riding on various styles of machines. The makers of the renowned Bat machine, which has gained such laurels on the racing path, certainly do not seem to consider pedals necessary to the eīiciency of their machines, and are evidently prepared to pin their faith on the success of the pedalless machine. Many riders will ask, 'What are you going to do with a pedalless motor bicycle if it goes wrong?' To this my reply is, It should not go wrong if properly made and well looked after by its owner. I have now ridden a machine without pedals over 3,000 miles, and it has never failed me once, except in tri□ðingmatters, which I was able to remedy in a few minutes, and I have taken long rides of over 100 miles a day on many occasions, and I very rarely ride out without doing between 40 and 60 miles. I keep an eye on all its parts, and make sure all is right before I go out, and I never have the least fear of breaking down. My machine is □ðttedwitha 2¾hp De Dion engine, a good-sized, reliable De Dion carburetter (a good carburetter is a sine quâ non on a pedalless motor bicycle), a good coil, well wired up, and a Bat raw-hide belt. The rest of the machine is as plain as can be, strong throughout, with girder front forks. To start it, I only have to walk it sharply, or run it three or four yards, and the motor begins to beat at once at a 4-5mph pace. It is easily mounted, and if my exhaust valve is properly ground in and the machine is properly in order, this speed develops to about 7-8mph, and it will go on beating at the same speed all day without attention. I have no trouble in getting the right mixture', as my carburetter is so made that the mixture is always 'ready set' with the two little levers right back, and the machine is bound to start every time. I can leave it idle in the shed for 10 days—never see it, in fact—and I go to it, turn on the petrol valve, put in my connecting plug, and the machine will generally start with a few yards' run (to loosen the piston), just as though I had only put it away an hour before. The position of the footrests or stirrups, too, is much more comfortable both on one level than the moving pedals at right angles. When adjusted to the right reach from the saddle, the position when riding is something between sitting and standing. In conclusion, I am quite satis□ðedwithmymachine in its pedalless condition. and have no desire to return to former designs. The only thing I am ever afraid of happening is the breaking of an exhaust valve. I know I ought to carry a spare one, but I do not. I look at mine occasionally, and if it looks all right I do not trouble. I have had a belt break now and again, but I carry a spare belt-fastener. and have always been able to put it right in a few minutes. Any machine properly made with a 2¾hp engine and good large carburetter (spray) is quite safe without pedals. given ordinary care and attention to all details, and even in the case of an exceptionally steep hill one can run alongside and allow the engine to take up the unloaded machine."

"THE SUBJECTOFOURILLUSTRATIONisthat of Mr FRButler, a well-known motor and cycle agent, at Baldock, Herts. He recently called at our oīice on his En□ðeldmotorbicycle, and in the course of conversation ex-plained that this machine, which was originally delivered in February, 1902, had been in constant use ever since that time, being let out principally on hire, besides being ridden by himself for hundreds of miles. Although the machine is now an out-of-date pattern, we call attention to the durability of the motor cycle, as many of our readers are constantly enquiring whether second-hand machines of good make are worth buying, a prevailing idea being that if they have been ridden for a couple of years they are more or less worn out. The compression on the En□ðeldenginewasperfectly good, and the bearings showed no signs of wear, either in the engine or cycle."



“Mr FRButler, of Baldock, on his 1902 Royal En□ðeldMotorBicycle.”



“Mr MD Rucker has become a most enthusiastic motor cyclist. We show him with his favourite machine, a Bowden, □ðttedwithFNengine. The whole of the driving and control is eīected by means of the Bowden wire mechanism. Mr Rucker is one of the best all-round athletes that ever mounted a cycle, a fearless cross-country rider, a crack shot, and a □ðneswimmerandrunner. He declares motor cycling is far □ðnersportthan driving a motor car.”

“TWO MOTORCYCLISTS, MessrsFerdinand Budicki d’Agram and Sigmund Eclserl, of Vienna, are at the present moment engaged in making an extensive motor cycle tour. They have already passed through a part of Europe and the North of Africa, taking on their way Tunis, Oran, Algiers. and Constantine, and during the month of August they passed through Italy and Switzerland, and they intend □ðnishingtheirtour by passing through the following towns: Calais, Brussels, Amsterdam. Rotterdam, Hanover, Berlin. Hamburg, Copenhagen, Christiania, Carlstadt, Stockholm, Helsingfors, St Petersburg, Vilna, Kovno, Warsaw, Risburg, and Gratz. They hope to □ðnishthetourbefore the end of this month. Their motor cycles are furnished with motors of 2¼hp.”

“WE HAVEHEARDSOMANY discussions and have had so many enquiries from motor cyclists about side-cars that we think a few words about our own experiences with them will not be out of place. Our □ðrstridewithone was both unpleasant and uncomfortable, and, like Mr Arnott, we felt it tiring to steer. But we did not set it aside and try another means of taking a passenger. We were not long in making another trip, and at the end of 40 miles we returned quite delighted with

our purchase. The steering is simplicity itself. Corners may be taken with ease, though we do not advise them to be taken too rapidly, and the charm of sociability is delightful. Provided an eīicient silencer is □ðttedtothemachine, there is no need to shout to make one's passenger hear. In our opinion the trailer is far behind this enjoyable means of locomotion, while the forecarriage is not much in front of it."

"A CURIOUSMOTORCYCLEaccident has occurred at Namur, when a rider, coming along at a good pace, somehow ran against one of the stone blocks which hold the iron stays that support a railing along the bank of the Meuse. The shock sent the rider out of his saddle and projected him into the river. His body has not yet been found, though the spectators of the accident went to his immediate assistance, and the only clue to the identity of the drowned man is the number of his machine. It would appear that his head must have struck something, so that he was stunned when he fell into the water."

"PHOENIXMOTORSHAVEestablished a most businesslike factory (which is just getting into full swing) equipped with modern plant necessary for the turning out of Phoenix motor cycles and Trimos. Showroom, oīices, store-rooms, brazing and machining, polishing, plating, body-making, and □ðnishingdepartments, areall busy with the hum of industry. In the body department we noted a large number of the new popular Trimos being prepared for despatch, several □ðnishedinaChinese green for Singapore. Charging plant is also installed, and anything from the smallest accumulator to the big electric car accumulator can be undertaken."

A MIDNIGHT RIDE

"NEARLYeverymotor cyclist is able to recall some bright particular ride before which all others pale in interest. During the past and previous seasons I can look back upon many a pleasurable outing, yet there is not one that aīords more enjoyable recollections than the one I am about to record. With a companion, whom I shall refer to as X, we had planned to start from London, or, rather, its southern outskirts, at twelve o'clock on a Saturday night in July last. Our destination was Hastings, over 60 miles of the prettiest and best surfaced roads to be found near London. Previously, we had done the journey in the three hours, but this time we elected to travel down in a more leisurely manner, in time to arrive for an early breakfast. Theeventful Saturday at length arrived, and proved to be one of the few really □ðnedaysthathave been vouchsafed us this year. The early hours of the evening accordingly were spent in preparing the machine. The engine (a 2½hp Minerva) had so far behaved splendidly, and we anticipated little, if any, trouble in this direction. The accumulator, newly charged, and good for 800 or so miles, was packed into the case, plug and contacts cleaned and adjusted, and the tanks □ðlledwithCarless. The machine was then mounted and run briskly on the stand. All was well! Next the trailer was looked to. To the back of this we strapped a small dressing-case containing a few spare articles of clothing, and also a □ðaskofsomething'special', for previous experience of all-night riding on the old

push-cycle had told me that this might prove welcome in the wee sma' hours. Punctually at twelve, therefore, we lit up and made a start, and here I may mention that my companion has acquired the art of being able to mount and dismount a trailer whilst it is on the move—amost useful accomplishment, though it is a trick that, in his own words, 'takes a bit of learning', as most will believe. Bromley and the end of the rather rough macadam was soon reached, and as we skimmed through its narrow high street the echoes of the steady 'pop-pop' of the engine resounded sharp and clear. Then we were in open country, and 'purred' through Lock's Bottom and Farnborough in □ðnestyle, giving the engine a rest as we descended the long steep hill of that name, at the foot of which a few twinkling lights betokened Green Street Green. From here the road ascends gradually to Pol Hill, and we became aware that what slight wind existed was in our favour. So with a little more gas and the sparking advanced, the machine bounded along the white road that lay ahead. Close to Halstead we overhauled the GPO horse-drawn mail van that starts from the GPO every evening and serves some of the remoter districts hereabouts. A cheery 'Good-night' from the driver as we sped by, and soon we reached the tree-tufted crown of Pol Hill, where the road descends through a scene of exceeding beauty to Riverhead. On each side towers a steep bank of trees. Descending slowly—as it was exceedingly dark ahead—we noticed the lights of Shoreham village twinkling in a hollow at the foot of the precipitous slope on our left. Halfway down, the road bends and runs out into the open, still continuing downhill to Riverhead. At Sevenoaks Tubs Hill entailed rather a stiī climb, and I warned my passenger to prepare to dismount should the engine slacken speed. By dint of vigorous pedalling, however, we managed to breast, the hill. Sevenoaks was as silent as a tomb—not a light visible anywhere. At the next hill the engine commenced to race, the machine meanwhile crawling. X jumped out, and I managed to get to the top by pedalling. A look at the belt showed it was on the the slack side, so by the light of the acetylene lamp we shortened it a tri□ðe. We descended Riverhill cautiously, mindful of the fact that the abrupt bend is generally loose and cut up by traīic. It was as much as I could do, even with two brakes, to check the machine, but, happily, it was a clear night, and the white road ahead could be discerned for some distance. Refreshed after a good rest the engine took us along the smooth, level road past Hildenborough in □ðnestyle—a grand spin this. At Tonbridge, X consulted his watch, and found it was twenty minutes to two—well inside the schedule time. Not a light or living soul did we see as we rode through the town and over the little bridge that spans the Medway. Sharp to the left, we turned at the fork roads close to the SER station, and the stiī little climb out of Tonbridge was taken in good style. Burgess Hill—the stiīest on the outward journey—was reached. The surface, however, was excellent. Forward went the throttle lever, and with spark advanced we took the formidable hill at full, or nearly full, speed. First we □ðew, then the 'poms' grew less and less frequent and I to retard the spark cautiously. I called upon X to dismount, which he cleverly managed to do. Thus lightened, I romped up the remainder of the hill. As the engine was hot we decided to rest awhile on the inviting roadside bank. X suggested a drink. Good idea; so we unstrapped the trailer bag and each proceeded to sample the contents of the □ðask therein. The view from the summit of Burgess Hill is one of the □ðnest in the South, and on that night we could plainly discern the lights of Tunbridge Wells. Another dose of oil for the engine, as there was some stiī work ahead, and we were once more on the move, the road, though decidedly switchbacky, being absolutely perfect. On through Pembury, and over roads that were made for motor cycling, merrily 'purred' the engine, the regular 'pop-pop' lending pleasant music to the journey. As we dropped down into Lamberhurst X suggested that we should change places, so at the foot of the hill I dismounted and snugly ensconced myself in the trailer. The stiī hill leading out of the village gave X some work to do, but with vigorous pedalling we surmounted the slope. Presently X pulled up, and suggested that we should again sample the warmthful beverage of the □ðask. This

time we □ðnishedit.At Flimwell we met the □ðrstsignsofdaybreak in the far east, and gradually the light of day spread over the skies. High up at Robertsbridge we rested awhile, and witnessed a glorious sunrise. 'Twas a splendid picture. As we sped over the remaining 17 miles that separated us from the sea, daylight gradually asserted itself. Past St John's Cross and into Battle, where even so early in the day there were signs of life. Very beautiful did the famous old abbey appear in the soft misty light of early morn. Halfway up the stiī hill out of Battle the engine slowed and pulled up dead. Dismounting, I found the sparking well advanced and the throttle wide open, so that when the motor commenced to slow down it had naturally lost power. However, with a good push-oī, Xgot going and scaled the top, and I lit my pipe and sauntered up the rest of the incline. The fresh, invigorating, morning air began to sharpen up our appetites, and, indeed, an all-night ride on a motor cycle is calculated to give an appetite to anyone. After one or two sharp little inclines were negotiated we arrived at the summit of Silverhill and sighted Hastings and the sea in the misty hollow below. Skimming over the excellent wood-paved parade from St Leonard's to Hastings we made for the old town, and were lucky enough to □ðndopenapleasant little coīee-house overlooking the □ðsh-marketandthe quaint old timbered houses of Rock-a-Nore. And here, partaking of a hearty breakfast and a contemplative cup of tea, do we store up in the treasure-box of our memories a picture that months of fog and rain have failed to dim.

CMF"

"Two motor cyclists engagedin a friendly speed trial."

THE FREEMASONRY OF THE MOTOR CYCLE.

"ALL CYCLISTS OF THE 'good old ordinary' days will remember with pleasure the delightful 'freemasonry of the wheel', as it was then called. One used to make new friends each ride, and in a year or so seemed to know every rider for miles around. The writer, in the good old days of 1878, 1879, and 1880, made many acquaintances in this way who are to-day and seem likely to prove lifelong friends. All these thoughts are recalled by what may now be called the 'freemasonry of the motor cycle'. Every motor cycle we meet we have the same old interest to see what make of machine is being ridden, and whether we know the rider…the qualities of the various machines—engine power, position of the engine, accumulators, sparking plugs, valves, etc—form interesting topics to converse about and pass comments upon. But by far the greatest source of satisfaction is the evident desire of all motor cyclists to assist one another in the case of a breakdown or mishap, and many acquaintances are made in this way. One feels almost compelled to sing out, 'Is anything wrong?' The writer has had the pleasure many a time of assisting to put matters right—faults which have never happened to his own machines. In this way, he gains knowledge, which comes in extremely useful, and teaches him to guard against similar mishaps occurring in his own experience. The obvious moral of it all is 'Help one another', and, independently of being of assistance, you will □ndthetimeand trouble bestowed anything but wasted. Moreover, the writer also perceives a time rapidly approaching when the brotherhood of the motor cycle will require to hang together even more strenuously than at present.. In saying this, he of course refers to the 1st of January next, on which date the new Motor Act will come into operation…it is very obvious that the stringent clauses it contains (in which the mildest penalty is .£5, ranging up to or at the discretion of the Court imprisonment for not exceeding three months) will give plenty of scope for the previously quoted moral of 'Help one another'. Indeed, this view of the question has struck some members of the motor cycle confraternity so strongly that they consider, as an addition to 'moral help', a 'Motor Cyclists' Protective Association' should be promoted, and we think this is an idea well worth consideration. "

"MOTOR CYCLES ARE NOT con□ned to the middle class. Thanks to modi□ed prices and the extension of the instalment system, the motor cycle is becoming a more familiar vehicle with the artisan class."

TO CONCLUDE THIS RAMBLE through the motor cycling world of 1903, here are some quotes that re□ect the speed at which the new-fangled motorised bicycles were evolving into motor cycles: "The new 3½hp Simms bicycle motor □tted with the Simms-Bosch 'Arc-light' (high-tension) magneto ignition, which the makers claim as one of the greatest novelties for the coming season. This system of ignition consists of a magneto machine which produces a 'jump' spark without the aid of a coil, the machine forming a complete out□t in itself. Further, it is □tted with a lever by means of which the spark may be advanced or retarded. It is also applicable to any motor, as all that is necessary is to arrange a suitable rotary drive, and connect one wire from the terminal to ignition plug…All taps and levers are dispensed with, the machine being controlled from the handlebar by means of twisting handles and Bowden wire…The clutch is on

the engine pulley and is operated by a lever on the left handle grip, by means of a Bowden wire…The drive is by a Hans Renold motor chain from a spring clutch…The new Raleigh-patent two-speed gear may be □ðttedtomachine if specially ordered…Pedalsare dispensed with as these are unnecessary, foot-rests being provided for the feet…Motorcyclists will be interested in the new 'hand protector' which obviates the necessity of wearing gloves. As riders well know, it is not possible to have the same control over the machine with a thickly gloved hand. The new protectors are of leather, fur-lined…A novel hinged rear mudguard greatly facilitates the removal of the rear wheel…A cure for all tyre punctures is shown here in the shape of Millennium, sold, in pumps, by means of which the puncture closer may be forced into the inner tube through the valve…There is no doubt that the 'Alldays' motor-bicycle is a beautifully □ðnished and serviceable machine, all the parts of which are made to gauges and interchangeable…The □ðrm also makes a speciality of what is known as gauge limit work, which provides the certainty of any part so made being certain to work without □ðtting…Motorcyclists will be interested in the new pattern combined carrier and stand…All the parts of this machine are standardised…Savon des Chauīeurs, a special soap for automobilists, was on sale. It is retailed in collapsible tubes at 1s each, and will remove grease, oil, etc., from the hands."

PS…this is an enthusiast named Percy Brooke. I'm not certain of the date but judging by the bike and trailer 1903 is a pretty good estimate. Percy was the □ðrst motorcyclist on the Isle of Man and thus the □ðrst rider on at least part of what became the TT course. Here's to you, Percy!

- ***And ĭnally, a selection of adverts, including some from the colonial side of the pond.***

Cable Address, AUTOMATIC, AURORA.
Long Distance Telephone 333
Inter State 333

AURORA Automatic Machinery Co.

DESIGNERS & MANUFACTURERS OF COMPONENT PARTS FOR CYCLES MOTOR VEHICLES.

THOR ROLLER BEARINGS

Aurora, Ill. Nov. 15, 1903.

THE RIDING PUBLIC:

Before purchasing or deciding on your motor cycle for the coming year, we trust you will take time to investigate the merits of the celebrated "THOR" Motor and Parts. Machines using these parts are "keeping to the front."

We shall be pleased to advise you further regarding their many good points.

Yours very truly,

AURORA AUTOMATIC MACHINERY COMPANY.

THE ONLY MOTOR BICYCLE

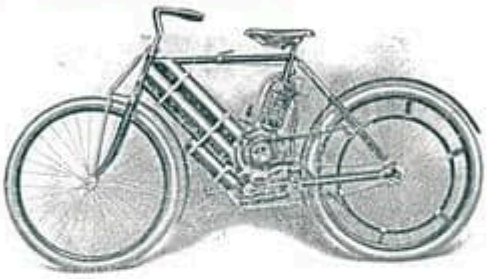
(OUT OF TWENTY-THREE ENTRIES)

Completing the Four-Hour Contest

SEPTEMBER 5th, AT MANHATTAN BEACH,

Without Stop or Breakdown—

THE THOMAS AUTO-BI



There was but one Thomas Auto-Bi entered

We had no stock of reserve machines lining the track ready to run in case of laydown or breakdown. We did not find it necessary to have our factory force on hand with a trunk full of parts and tools.

This Single Thomas Auto-Bi (there were TEN of another make) with its rider, E. J. Edmond

Went the full four hours without missing an explosion, without using the pedals, without heating.

ABSOLUTELY the only machine out of the 23 entered MAKING THIS RECORD

ECONOMY: 23 3-4 miles for each pint **or four miles more** than covered by winning machine in the economy event.

GET IN LINE FOR 1904.

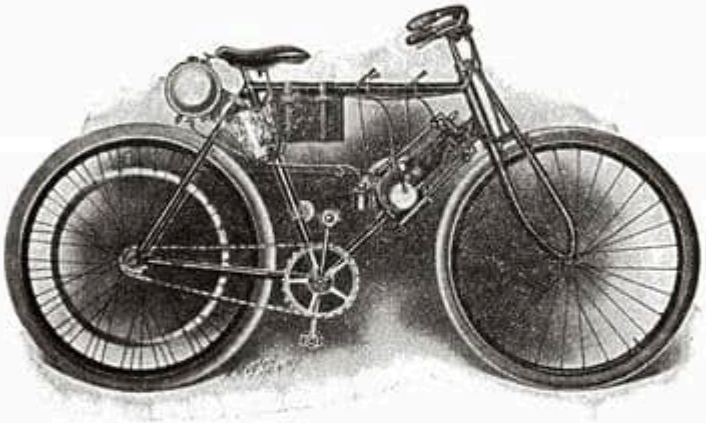
REMEMBER—We are manufacturers, not merely assemblers of motor bicycles

E. R. THOMAS MOTOR CO., 1205 Niagara St., BUFFALO, N. Y.

For a Limited Period Only
we are offering the

CLEMENT

MOTOR BICYCLE at $135



If you recognize an opportunity when you see it, we should hear from you by return mail. The CLEMENT is specially built and equipped for American roads and the equipment is the very best obtainable.

IF YOU PREFER IT,

We will supply the Clement Motor Outfit,

which will convert any bicycle into a motor bicycle.

Immediate Deliveries

and Liberal Discounts to Live Agents

A. Clement, 350 SHELDON ST., **Hartford, Conn.**

FAULTY IGNITION?
End it by Getting

COILS **AMERICAN** SPARK PLUGS

We have made a Specialty of Motor Bicycle Requirements and meet them perfectly. Write us.

AMERICAN COIL CO., - W. Somerville, Mass.

AVOID TROUBLE and ANNOYANCE and USE

"Splitdorf"

Patented Spark Coils

12 OUT OF 14 Winners in the Motorcycle Endurance Run Machines were so fitted.
Get in line if not already there.

C. F. SPLITDORF, 17-27 Vandewater Street, NEW YORK

To the Other Splendid Features

that have earned for

THE INDIAN

the right of undisputable leadership there has been added

The Grip Control

With this feature it will not be necessary to remove the hand from the bar of the Indian for any purpose.

A twist of the wrist literally controls it.

The right grip starts, stops and regulates the speed under any and all circumstances.

If you would know more about it, write us. It will insure the receipt of our 1904 Catalog and other extremely interesting and instructive reading matter.

HENDEE MFG. CO.

SPRINGFIELD MASS., U. S. A.

SIMPLICITY

is the Keynote of the

MERKEL

Finished first and with a perfect score of 1000 points, in the New York-Worcester Endurance Run.

There's nothing about it that any man of average intelligence cannot understand and manipulate; expert mechanical knowledge is not necessary. It contains fewer parts than any other motor bicycle and they are simple and easily accessible.

"I bought two (2) motorcycles this spring. The first one was a complicated chain transmission; the result was—trouble! trouble!! trouble!!! My second purchase was a simply constructed little Merkel. The result is—fun! fun!! fun!!!"—G. H. GRAVES, Indianapolis, Ind.

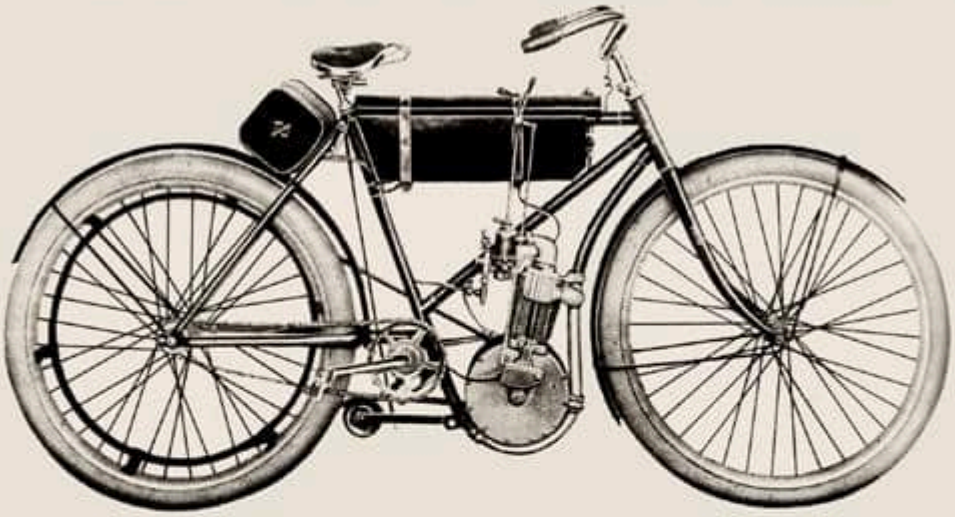
ONE LEVER

absolutely controls it—starts, stops and regulates the speed.

May we mail you our catalog? It's as honest as the bicycle itself

MERKEL MFG. COMPANY

MILWAUKEE W S.



THE WAGNER MOTOR CYCLE, 1903

Why buy anything but the best? Money placed in a **good Motor Cycle** is an investment But money placed in a poor Motor Cycle is a loss. If it does not run satisfactorily you cannot use it, and it is impossible to sell, or give away, a Motor that is not right. No, you have not **heard** of **us** before because we have spent **three years perfecting** a Motor Cycle to offer to the public. You want the best. Make no mistakes. Postal brings catalogue. Admitted by everyone. **THE BEST AT THE CHICAGO SHOW.**

WAGNER CYCLE CO., St. Paul, Minn.

Record: 8,000 miles without a repair.

Cheaper than Street Car Fare.

50 MILES FOR 10 CENTS.

***Mitchell* MOTOR BICYCLE**

Runs like a train, fast and steady, through mud or sand—under complete control—simple, safe and easy of operation, comfortable and durable. Easier to manage than a horse, never tires and will carry you farther every day than 20 horses in straight relay driving. *Costs nothing when not in operation.*

All the pleasure of coasting up hill and down without the labor.

Specially adapted to business and professional use. Ideal for pleasure. Full guaranteed. Different models to suit all requirements of speed and business. Send for our literature. Dealers and riders, write for agency. Manufactured only by **WISCONSIN WHEEL WORKS, Dept. 104, RACINE, WIS.**

IN JUSTICE TO SEVERAL YOUNG MEN WHO RECENTLY UNDERTOOK THE WORK DURING

OUR OFFER OF A MOTOR BICYCLE FREE

TO ALL WHO FORWARD

200 SUBSCRIPTIONS AT $1.00

HAS BEEN EXTENDED

FROM JANUARY 1 TO MARCH 15, 1904.

The extension will afford ample time for other energetic young men to obtain high grade, up-to-date mounts.

THE MOTORCYCLE MAGAZINE.

THE MOTORCYCLE MAGAZINE
154 NASSAU ST., NEW YORK.

Enclosed find $1.00, for which enter my subscription to THE MOTORCYCLE MAGAZINE for one year, commencing with the issue of_____

Name_____

Address_____

_____

THE 1903 "MERKEL" MOTOR CYCLE

MERKEL

The "Merkel" won 1000 points in the New York-Worcester Endurance Contest and came in first, making the best time.

We have "Merkels" ready for immediate delivery. Get one now.

The Merkel Mfg. Co.
MILWAUKEE, WIS.

MERKEL

The 1903 Merkel Motor Cycle.

Mention Cycle and Auto Journal.

…Abatch from Blighty:

TWO'S COMPANY,

AND ON THE

Phœnix Trimo

(Reg. No. 39,763)

It is most enjoyable. The Phœnix is the pioneer of forecarriages. So practically has the design been thought out that it is absolutely impossible to make a satisfactory forecarriage without infringing the registered design. It is strong, rigid, and comfortable as a car. You can swing it round a corner without fear.

Booklet of the Phœnix Motor Bicycles and particulars of the "Trimo" forwarded on application.

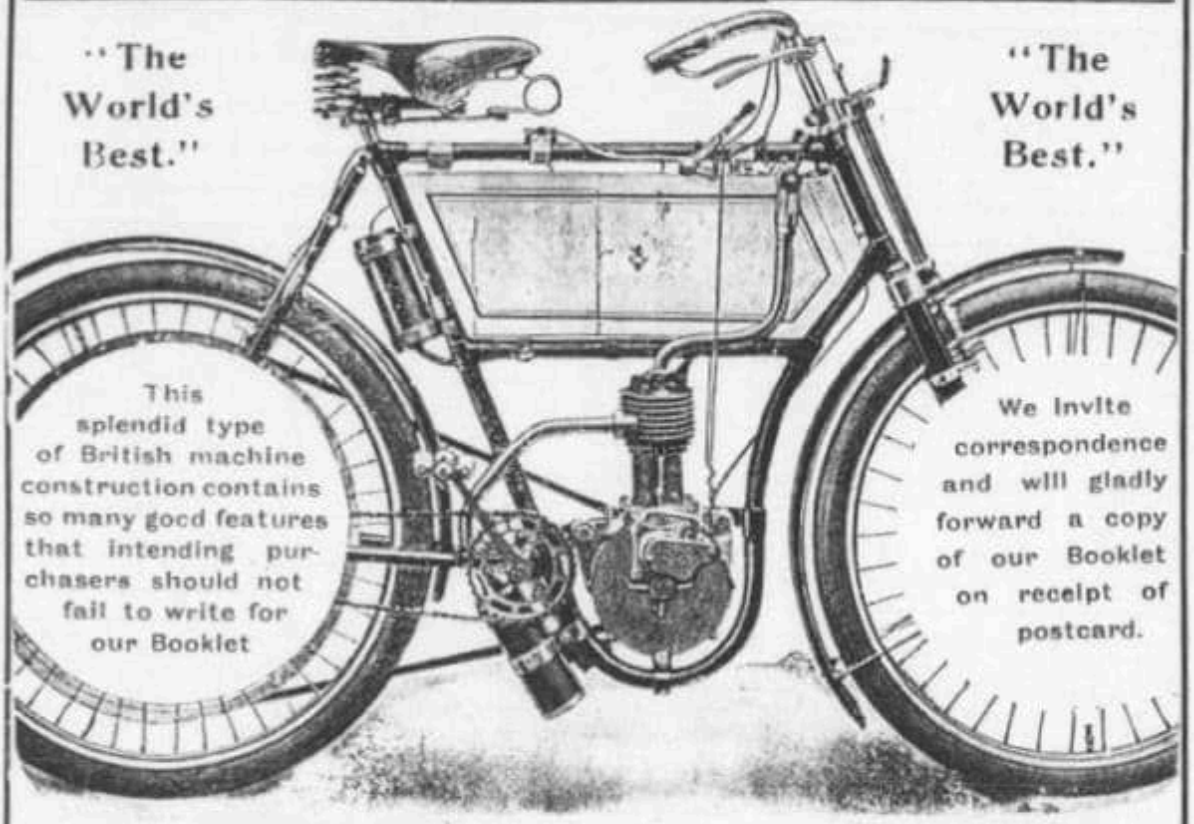
J. VAN HOOYDONK, Phœnix Motor Cycle Works, **736, Holloway Road, London, N.**

THE SWIFT MOTOR BICYCLE.

"Designed by one of motoring experience, and built by men of experience."—*Scottish Cyclist.*

"The World's Best."

"The World's Best."



This splendid type of British machine construction contains so many good features that intending purchasers should not fail to write for our Booklet

We Invite correspondence and will gladly forward a copy of our Booklet on receipt of postcard.

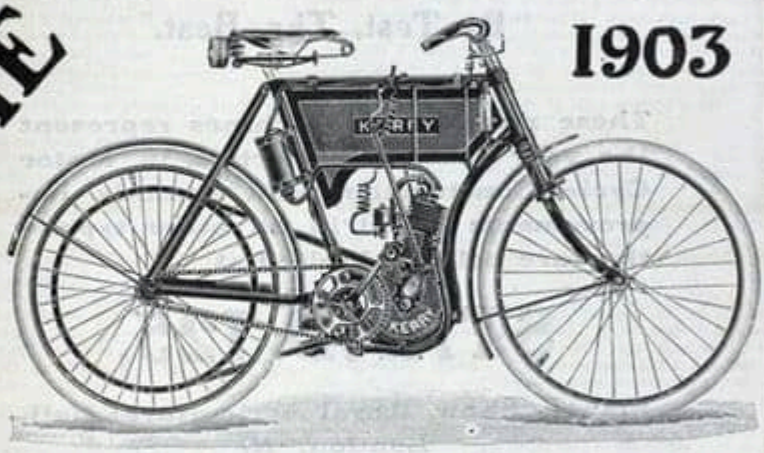
THE SWIFT CYCLE CO., LTD., COVENTRY.

Don't Fail

TO SEE

THE KERRY.

1903



It has all the

Best and Latest Points.

Call at

Stand 29c Stanley Show.

ALL PARTICULARS FROM . . .

East London Rubber Co.,

MOTOR DEPT., 211, SHOREDITCH.

2, 4 & 8, GT. EASTERN STREET, LONDON.

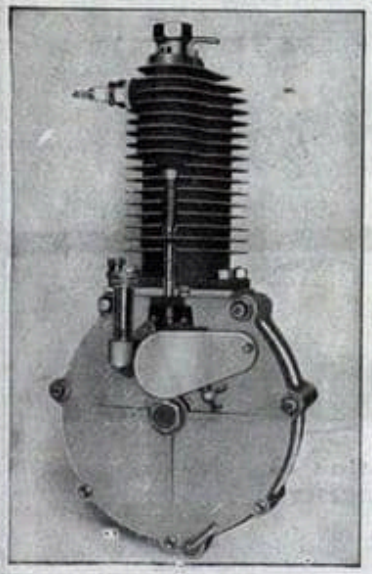
Telegrams: "AKERENE, LONDON." (Established 25 Years.) Telephone 2766 LONDON WALL.

EVART-HALL

The EVART-HALL FOUR-CYLINDER MOTOR CYCLE

DESCRIPTION.—No vibration. No noise. No belt. One chain only. Oil bath gear case. On clutch being released the engine is automatically throttled. Speed—four to fifty miles per hour. Hills—you need not consider them. Engine started before you mount by simply pushing switch or foot lever, you then take your seat, both feet being on the ground, raise the lever which operates the clutch, and you glide away with feet on rests. Tight places in traffic have no terrors, as you release clutch, stop machine, and put foot or feet on ground. To start again connect clutch. Workmanship strictly first-class. Ball bearings to all parts, including main engine shaft and cross shaft. Instead of sitting astride of a small uncomfortable saddle, you sit in a richly upholstered spring bucket seat, and can lean back and be comfortable, and have no starting troubles or hard work.

JUST ABOUT PERFECT.



2½ h.p.

Unaffected by Oil and Soot.

Cannot 'Short.'

Neat and Well Finished.

Nickel Plated.

No Delicate Parts.

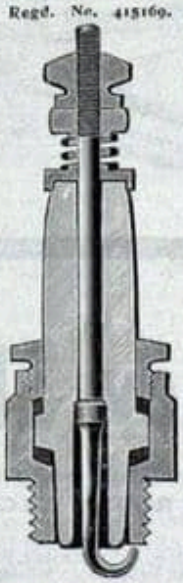
All Parts Interchangeable.

No Cement or Packing to Centre Stem.

No Asbestos Packing to Loosen and Leak.

Always gives Hottest Spark, Coil will Produce.

Regd. No. 415169.



Actual Size.

PROBABLY nothing has caused more trouble in Motors than cheap and badly designed Sparking Plugs.

The JAP Plug is the outcome of continuous daily trials with nearly every make of Plug under trying conditions. With no other plug have we got as good results as with the JAP.

Price 4/6 Each.

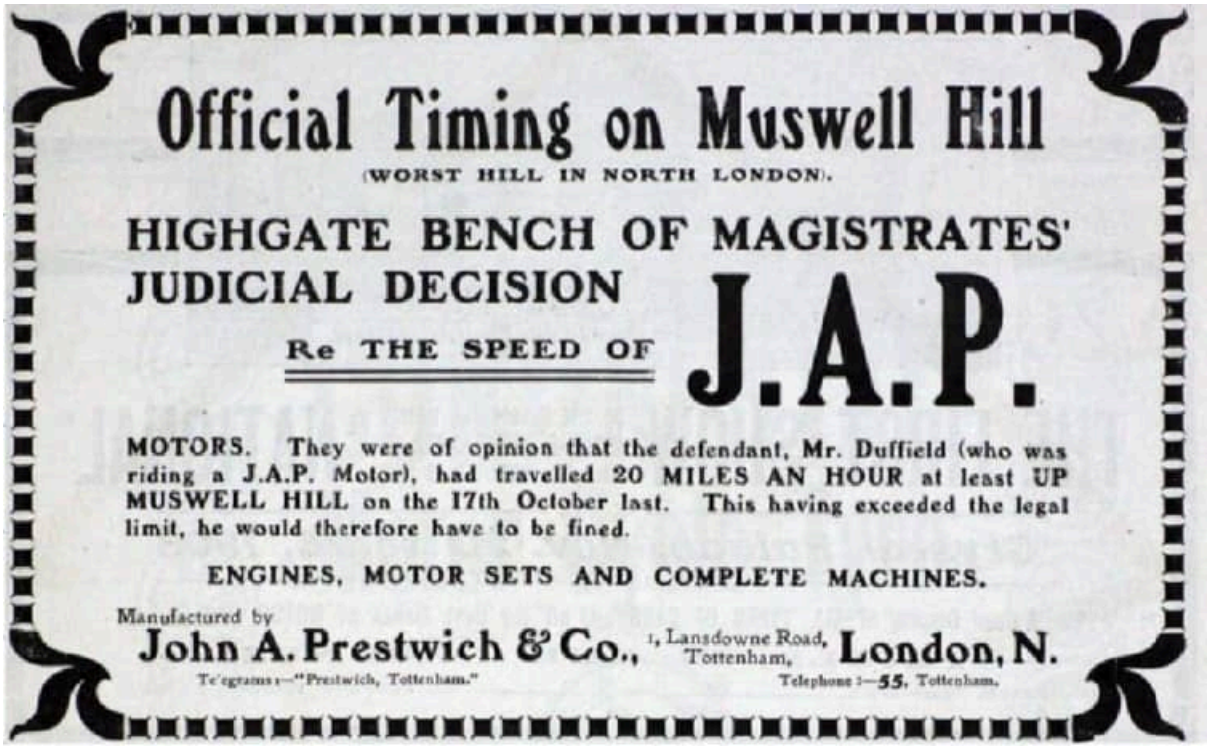
LIBERAL TRADE DISCOUNTS.

Engines, Motor Sets, and Complete Machines.

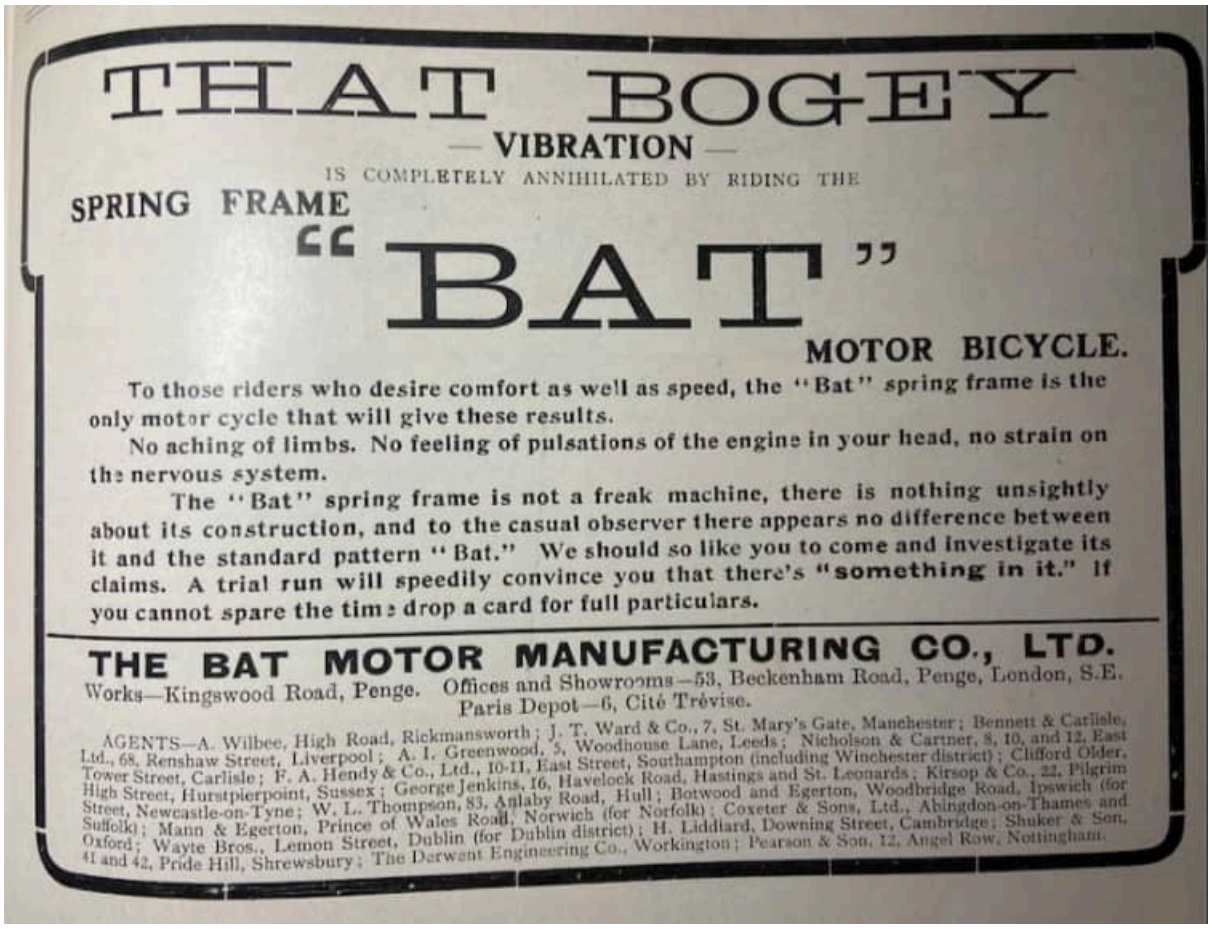
Manufactured by

John A. Prestwich & Co., 1, Lansdowne Road, Tottenham, **London, N.**

Telegrams—"Prestwich, Tottenham." Telephone—55 Tottenham.


Official Timing on Muswell Hill
(WORST HILL IN NORTH LONDON).
HIGHGATE BENCH OF MAGISTRATES' JUDICIAL DECISION
Re THE SPEED OF
J.A.P.
MOTORS. They were of opinion that the defendant, Mr. Duffield (who was riding a J.A.P. Motor), had travelled 20 MILES AN HOUR at least UP MUSWELL HILL on the 17th October last. This having exceeded the legal limit, he would therefore have to be fined.
ENGINES, MOTOR SETS AND COMPLETE MACHINES.
Manufactured by
John A. Prestwich & Co., 1, Lansdowne Road, Tottenham, London, N.
Telegrams:—"Prestwich, Tottenham."
Telephone:—55, Tottenham.

Such a cool ad, though one has to wonder if the boys at Tottenham asked Mr Duïield's permission or, indeed, if they chipped in to help with the □ðne.


THAT BOGEY
— VIBRATION —
IS COMPLETELY ANNIHILATED BY RIDING THE
SPRING FRAME
"BAT"
MOTOR BICYCLE.
To those riders who desire comfort as well as speed, the "Bat" spring frame is the only motor cycle that will give these results.
No aching of limbs. No feeling of pulsations of the engine in your head, no strain on the nervous system.
The "Bat" spring frame is not a freak machine, there is nothing unsightly about its construction, and to the casual observer there appears no difference between it and the standard pattern "Bat." We should so like you to come and investigate its claims. A trial run will speedily convince you that there's "something in it." If you cannot spare the time drop a card for full particulars.
THE BAT MOTOR MANUFACTURING CO., LTD.
Works—Kingswood Road, Penge. Offices and Showrooms—53, Beckenham Road, Penge, London, S.E.
Paris Depot—6, Cité Trévise.
AGENTS—A. Wilbee, High Road, Rickmansworth; J. T. Ward & Co., 7, St. Mary's Gate, Manchester; Bennett & Carlisle, Ltd., 68, Renshaw Street, Liverpool; A. I. Greenwood, 5, Woodhouse Lane, Leeds; Nicholson & Cartner, 8, 10, and 12, East Tower Street, Carlisle; F. A. Hendy & Co., Ltd., 10-11, East Street, Southampton (including Winchester district); Clifford Older, High Street, Hurstpierpoint, Sussex; George Jenkins, 16, Havelock Road, Hastings and St. Leonards; Kirsop & Co., 22, Pilgrim Street, Newcastle-on-Tyne; W. L. Thompson, 83, Anlaby Road, Hull; Botwood and Egerton, Woodbridge Road, Ipswich (for Suffolk); Mann & Egerton, Prince of Wales Road, Norwich (for Norfolk); Coxeter & Sons, Ltd., Abingdon-on-Thames and Oxford; Wayte Bros., Lemon Street, Dublin (for Dublin district); H. Liddiard, Downing Street, Cambridge; Shuker & Son, 41 and 42, Pride Hill, Shrewsbury; The Derwent Engineering Co., Workington; Pearson & Son, 12, Angel Row, Nottingham.

A STRING OF SUCCESSES HELD BY THE **BAT** MOTOR CYCLE.

AUTO CYCLE TRIALS AWARD.
1st Class Certificate.

1 HOUR Record.
6 HOURS' Record.

1 Mile Record.
50 Miles Record.

NON-STOP RECORD.

No other Motor Bicycle holds such a number of Records. A study will reveal that the BAT scores all along the line for Reliability, Non-Stop Runs, Speed, and Hill-climbing.

CATFORD HILL CLIMB,
'03.
The same **BAT** won both classes, beating Motor Cycles of much higher horse-power.

☞ WHEN ASKED WHICH MOTOR CYCLE IS **THE** BEST UNDER ANY CONDITIONS YOU'LL NOW KNOW ITS NAME.

For full particulars of this splendid specimen of the motor manufacturers' art, write for a copy of "The Book of the Bat."

THE BAT MOTOR MANUFACTURING COMPANY, LTD.

Works: Kingswood Road, Penge. Offices and Showrooms: 53, Beckenham Road, Penge, London, S.E. Paris Depot: 6, Cite Trevise.

On receipt of postcard the name and address of nearest agent will be forwarded.

REMEMBER SOUTHPORT!

when the Bat travelled at the rate of

62-79 MILES PER HOUR.

Yes, we hold a few World's Records, in fact, MORE THAN ALL the other Motor Cycles put together.

A CRACKER

THE PACE SET UP BY THE **BAT**

Full particulars are found in the "Book of the Bat," post free.

THE BAT MOTOR MANUFACTURING CO., Limited.

Offices and Showrooms: 53, BECKENHAM ROAD, PENGE, LONDON, S.E.

Works: KINGSWOOD ROAD, PENGE. Paris Depot: 6, CITE TREVISE.

On receipt of postcard, name and address of nearest agent will be forwarded.

Ah now, side by side, together we glide
O'er mountain, by valley, through sweet countryside,
Together in truth—not he away there
And she, all forgotten, dust smothered in rear.

If sociability be a charm of cycling, it has never been so fully assured as by this latest invention.

EVERY
MOTOR CYCLIST
should send
for particulars of the

"Liberty"
Sociable
Attachment

FOR
Motor Bicycles.

A really sociable vehicle.

PATENTED.

COMPONENTS, Ltd.,
Componentsville,
BIRMINGHAM.

Sociability
within the reach of all.

Ariel

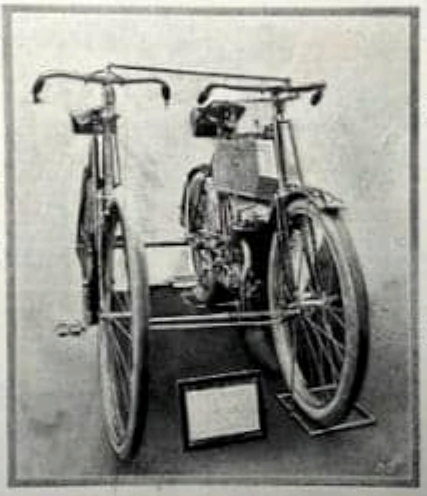
Motor Bicycles,

2 TO 3½ H.P.,

FROM

35 TO **50**

GUINEAS.



Ariel

Forecarriage,

18 GUINEAS.

Sidecarriage,

12 GUINEAS.

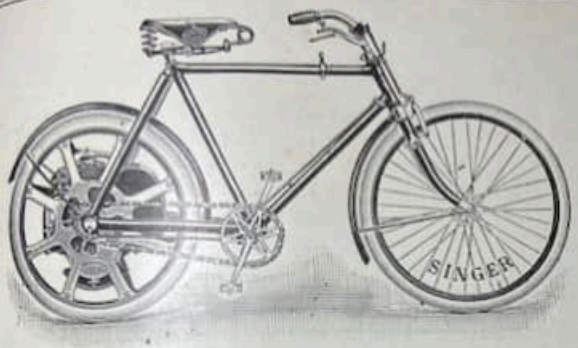
Ariel Cycle Attachment, **3** Guineas.

"The Motor," Nov. 25th. 1903:

"The Ariel Company have come right to the front by sheer merit."

Ariel Cycle Co., Ltd.,

BOURNBROOK, BIRMINGHAM.



SINGER

MOTOR CYCLES.

GEAR OR CHAIN DRIVEN.

Singer Motors are controlled by one lever without releasing the handles. Their strong points are simplicity, reliability, power at hills, and freedom from electrical and transmission troubles. The engine is the finest work put into any motor cycle extant.

BICYCLES for lady and gent.
TRICYCLES for lady and gent.
TANDEMS for lady and gent, or two ladies.
TRI-VOITURETTES controlled either by lady or gent.
SINGER GOVERNESS CAR for motor cycling *en famille.*

Catalogues post free. Free trials at works and depots.

Singer Cycle Co., Ltd.
COVENTRY.

London Depots—17, Holborn Viaduct and 10, Brompton Road, S.W.
Dublin Depot—114, Stephen's Green, W.

THE . . .

TRIUMPH.

2 H.P. MOTOR CYCLE IS SUPERIOR TO ALL OTHERS.

Mechanically Operated Valves.
Resilient Duplex Forks.
Lincona Belt.
Spray Carburetter.
One Lever Control.
Long Wheelbase.

Motor Bicycle Catalogue, with all particulars, gratis, on application.

TRIUMPH CYCLE CO., LTD., COVENTRY.

4 & 5, Holborn Viaduct, London, E.C. 30, Deansgate Arcade, Manchester.
4, King Edward Street, Leeds.

"This Tyre

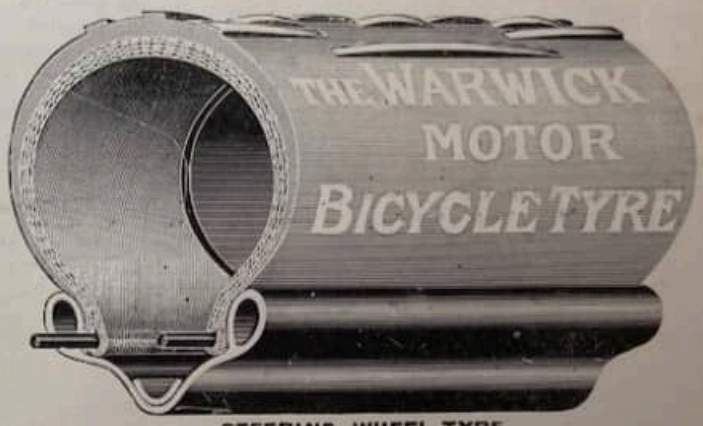
has been ridden by me about 3,000 miles and has been no trouble at all."

Extract from letter received from Mr. S. Hubert, Sidwell Cycle Works, 102, Church Street, Croydon.

FOR . . .

MOTOR CYCLES

A BETTER TYRE THAN THE



STEERING WHEEL TYRE

WARWICK . .

is outside the range of practical tyre manufacture.

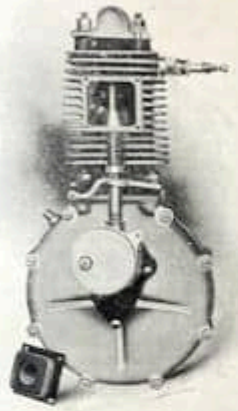
Specially constructed to withstand hard wear and tear.
Equipped with the safest and best non-slipping device.

Sections and full particulars post free.

THE WARWICK TYRE CO., LTD., Cambridge Street Works, Birmingham.

DUBLIN—34, Westland Row. GLASGOW—61, Bath Street. NOTTINGHAM—3a, Lower Talbot Street.
MANCHESTER—31, Northern Buildings, Deansgate. COVENTRY—Raglan Street.

Why the REX is strong.



3 H.P. MOTOR.

Firstly, because of the Rex Patent Baffle Plate Silencer which gives power owing to the immediate expulsion of all exhaust gases. There is no back pressure. Motor keeps cool.

Secondly, because the motor is in the ONLY correct position — rigidly secured in its registered cradle.

Thirdly, because of the true mechanical design of the frame, which resists all strains.

Fourthly, because the weight of motor and rider is uniformly distributed — overcoming all vibration and tendency to side-slip.

This outline is known to denote "class." There are three classes of motor bicycles—the cheap class selling at £30 or thereabouts, the better class costing some £10 more, and the

"Rex" Class

3 h.p. at 50 Guineas

(with Dunlop Tyres).

Other kinds may be excellent each in its way, e.g.: Speedy on the level, slow uphill; good when started, bad to start; steady when at slow pace, full of vibration as pace increases; safe on dry roads, dangerous on wet.

THE REX, KING OF MOTOR BICYCLES, combines an all-round efficiency for silence, speed, hill-climbing, absence of vibration, steadiness on greasy roads, and ease of control.

ON WAR-OFFICE LIST.

THE REX MOTOR MFG. CO., LD., COVENTRY.

Largest combined output of CARS and MOTOR BICYCLES in Great Britain.

…from La Belle France:

THE SÉE Motor Car Supply Co.

9, HILL'S PLACE, OXFORD CIRCUS, LONDON, W.

SOLE AGENTS FOR ENGLAND AND COLONIES FOR THE

LAMAUDIERE

Motor Cycles,

Paris-Madrid Type, 1904.

Free Engine.
Variable Speeds.
The easiest to drive through traffic.

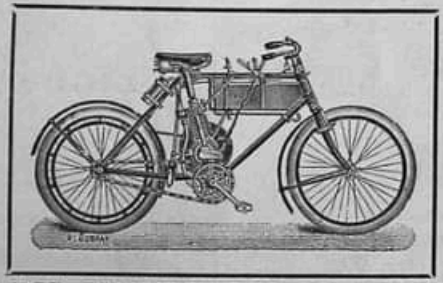
At least a year ahead of all others. The Lightest, Simplest and most Solid.

Made like a watch.

2½ h.p.; weight 90 lbs.

Free engine and changeable speed.
Steel cylinder, cooling instantaneously.
Tempered steel bearings.
Perfect spray carburetter.

Our PARIS-MADRID RACER made the best average during the race (63 kilometres per hour) until run into by a car crossing the road at Vitray en Beauce.



SPEED—Up to 35 MILES PER HOUR. THE IDEAL FOR HILL-CLIMBING.

DIPLOMA OF HONOUR, Paris Exposition, 1900.

Winners of both Criteriums for Motor Cycles in 1901 and 1902.

Price £45

SUB-AGENTS REQUIRED FOR EVERY LARGE TOWN IN THE UNITED KINGDOM.

Motocyclette légère
1 et 2 CYLINDRES
2, 2 1/2, 3 et 4 HP

LA MOTO-RÊVE

A débrayage et à changement de vitesse

GENÈVE

Acacias — Suisse

Catalogue franco sur demande

MOTOCYCLETTE

GEORGIA KNAP
(TROYES)
MOTEUR en prise directe
SANS COURROIE

COURSE PARIS-MADRID

BUCQUET sur une **MOTOCYCLETTE WERNER**

Est arrivé PREMIER à Bordeaux,

BATTANT 60 concurrents et ayant fait une moyenne de 63 kil. sur tout le parcours

PAS DE CONFUSION — SANS COMMENTAIRES

ETABLISSEMENTS WERNER FRÈRES, 10 *bis*, Avenue de la Grande-Armée, PARIS

Le plus grand succès

de

PARIS-MADRID

est celui des

Motocyclettes PEUGEOT

Les premières du classement par équipes, dans l'étape PARIS-BORDEAUX

avec **CISSAC, LANFRANCHI, MOMO, COUDERC**

confirmant une fois de plus la supériorité des

MOTOCYCLETTES PEUGEOT

comme vitesse, stabilité, résistance, régularité de marche

TOURISTES, VOYAGEURS, appelés à faire choix d'une Motocyclette, n'achetez pas sans avoir vu le dernier modèle de la

MOTOCYCLETTE PEUGEOT

LES FILS DE PEUGEOT FRÈRES

à VALENTIGNEY (Doubs)

AGENCES DANS TOUTES LES VILLES DE FRANCE ET DE L'ÉTRANGER

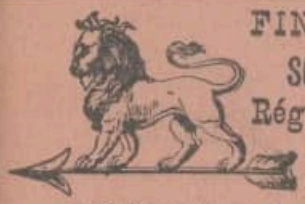
Paris-Madrid

La Motocyclette PEUGEOT, première du classement par équipes, domine tout le lot des concurrents par sa vitesse, sa résistance, sa régularité de marche.

La Motocyclette PEUGEOT 1903 est la plus parfaite.

Les Fils de PEUGEOT Frères

à Valentigney (Doubs)



FINI, ELEGANCE,
SOLIDITÉ, STABILITÉ,
Régularité de marche,

Telles sont les qualités qui justifient la vogue de la

MOTOCYCLETTE PEUGEOT
1903

Moteur 2 H P vertical, carburateur Longuemare

La notice complète sur la mise en marche, le fonctionnement, l'entretien, est envoyée franco sur demande.

Les Fils de PEUGEOT Frères

à Valentigney (Doubs)

La Course PARIS-MADRID

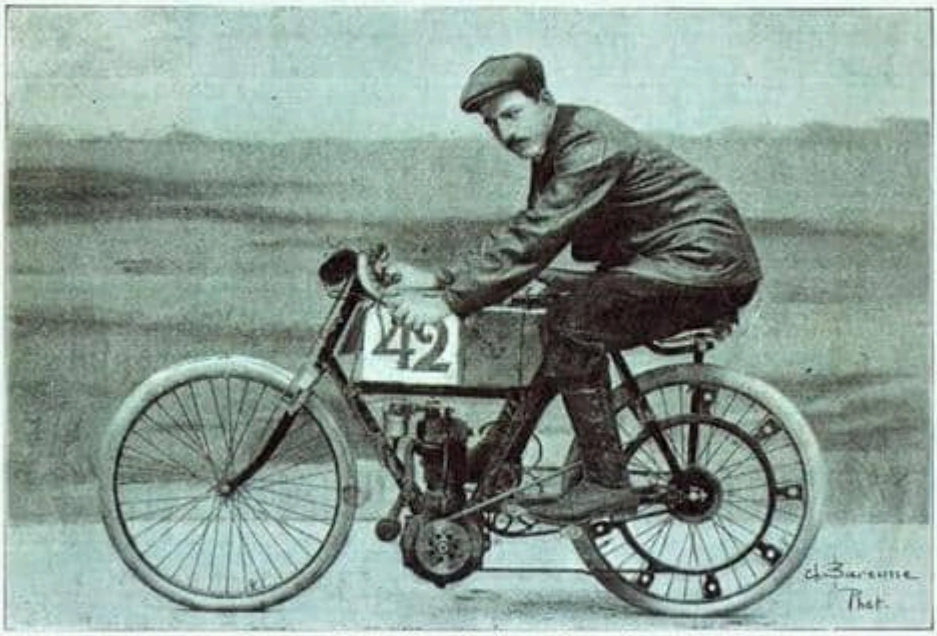
ne pouvait pas échapper à

LA MOTOCYCLETTE WERNER

BUCQUET sur une WERNER

est arrivé PREMIER en 8 heures 55 minutes

Battant **59** motocyclettes de toutes marques



Les visiteurs de l'Exposition des Quinconces ont constaté que les WERNER victorieuses étaient **IDENTIQUES** à celles livrées aux clients, lorsque les maisons concurrentes ont couru cette course sur des machines munies de moteurs d'autres marques, n'ayant rien de commun avec leurs modèles de commerce.

La Course Paris-Madrid a couronné ainsi la longue liste des **grandes courses gagnées** par la motocyclette WERNER : **Paris-Vienne, Paris-Berlin, Circuit du Nord, Paris-Bordeaux** 1900, **Concours de l'Exposition, Critérium de Provence, Milan-Gênes,** etc., etc., etc., établissant la suprématie de la WERNER.

Première Marque du Monde

Établissements WERNER Frères et Cie, 10bis, avenue de la Grande-Armée, PARIS

…and from Italy, where an Italian ace was strutting himself on a French □ðier.

Non è un successo isolato che classifica una ***Marca,*** ma i successi continui così ***Ciclistici*** che ***Motociclistici*** della

PEUGEOT

che la fanno la PRIMA MARCA DEL MONDO.

GIUPPONE batte il Record dell'ora **Km. 65,400** e dei 100 Km. in **1 ora 33'** con Bicicletta **PEUGEOT,** gomme *CLÉMENT* ed allenato per tutto il percorso da una sola Motocicletta **PEUGEOT.**

Corsa Motociclette: 3 INSCRITTI, 3 ARRIVATI IN FINALE!!

e ***GIUPPONE*** colla sua **PEUGEOT** deve la perdita del primo posto che aveva in mano, ***con un buon giro di vantaggio,*** ad uno STUPIDO INCONVENIENTE DI GOMME.

Ciò conferma i successi delle PEUGEOT di Dourdan e Gaillon!!!

Agenti Generali per l'Italia:

G. C. FLLI PICENA - TORINO - Via Lagrange, n. 41

1904

THEMOTORCARACTcameinto force on 1 January. Oīences included: “Driving recklessly or negligently or at a speed or in a manner which is dangerous to the public”; refusing to give your name or address following an oīence; using an unregistered bike; using a bike without the correct style of registration mark; “failing to produce a licence, when driving a motor cycle, upon the demand of a police constable”; failing to hand in a licence for endorsement following an oīence “within a reasonable time”; “forging or fraudulently altering or using or fraudulently lending or allowing to be used by any other person, any indicative mark or any licence”; leaving the scene of an accident “occurring to any person (whether on foot or horseback or in a vehicle)”; riding on any road “scheduled by the Local Government Board as being especially dangerous to motor cycle traīic, or on a highway which does not exceed 16ft in width”; exceeding 20mph “and within any limits or places scheduled by the Local Government Board” exceeding 10mph; and “Driving over the Menai Bridge, contrary to the regulations of the Commissioner of Works”. Maximum penalties included a £50 □ðne (that’s the price of a decent bike, worth more than £7,500 in 2023), three months’ jail and a riding ban “for such time as the court thinks □ðt”.

“A CORRESPONDENTWRITESMEsomewhatplaintively about the numbering conundrum. The nature of the mystic symbol which he is to bear has been communicated to him, but he cannot decide upon the best means of □ðxing the plates, and in this respect I can sympathise most heartily with him, because, although I have known my number for some weeks, it is only to-day (as I write) that I have given an order for a set of plates, and even now I am not thoroughly satis□ðed that, with so many busy brains at work, some better schemes will not be put forward. I think, if I were not likely to be wanting to use a motorcycle for a month or two, I should wait, sitting on the fence as it were, applying, however, for the number before the □ðgures got too high. In London, for instance, the numbers a week or two ago had nearly reached the limit of 999, and after that London will have to take on a double index letter instead of the simple A at present being issued. I have decided upon plates of stout tin, stove-enamelled, with the numbers painted on. Made in this way they are lighter than enamelled iron, and in the case of a blow they will bend, and the surface will not fracture as enamel will. The rear one I am having clipped on the rear of the luggage carrier, which will allow it to present a vertical surface, will carry it in a 7 place where it i can be □ðrmly and rigidly attached, and if the machine should happen to be stopped at the wayside, resting on the stand, the number will be down out of sight. This latter may be a minor point, or it may be important, and if it is important the front number can easily be concealed in some seemingly careless way. I think that a plate attached to the rear mudguard would be somewhat in the way, and certainly it would be liable to sustain damage, whilst on the backstays there is insuīicient room with a brake and a toolbag and, as the plate must be quite upright, it would have to stand away from the stays. The front plate is equally awkward to deal with, but I propose to have a couple of clips riveted at the back to enable it to be attached to the twin tubes of the steering head, and I shall have this a square plate, whereas the rear one can be oblong. Night illumination is a terrible nuisance, and I can foresee a lot of trouble arising from the Local Government Board’s regulation. I should not mind adopting the plate which projects from the lamp, a system which I know from experiment to be quite satisfactory, provided the plate be kept perfectly □ðat and upright and at right angles to the lens.”
‘Cyclops’

“THE FIRSTMOTORCYCLISTinEastAnglia to be prosecuted for driving his motor cycle without the identi□ðcation plate, made his appearance before the King’s Lynn bench of magistrates

recently. Thedefendant pleaded guilty, and the magistrates, recognising the paltry nature of the aīair, only imposed a □ðneof5sand costs."

"TRAVELLINGDOWNTHEBATHROADlast week we easily overtook a motor cyclist who was pedal-assisting his mount up a hill. He informed us that he had rather more than □ðftypoundsof luggageon board, and he added, 'I think it's only kind to push a bit uphill.' He certainly made up for pace in goingdownhill."

"ALREADYANEXPORTtradeisspringing up in British-built motor cycles. During the four months ending April, the shipments amounted to 265 machines, Which, together with parts, represented a value of £12,220."

"THE SPLENDIDWEATHERlastweek resulted in a large number of motor cycles coming out on the roads around London. Evenup to the small hours the roads resounded with the merry teuf-teuf of motors large and small."

"MANY OF OURREADERSarenodoubt waiting until the price of a motor cycle comes within their reach. To those who are waveringwe would like to point out that the price of the Star motor cycle is now reduced to £38."

"THE NUMBEROFTRAILERStobeseen on the roads at recent week-ends aīords convincing evidence that the older form of passengerattachment still retains a fair amount of popularity. Several we came across were □ðttedtoup-to-date and powerful machines, which seemed to make light work of the extra load."

"WE AREINFORMEDthat a young-man is doing good business at one of the South Coast-resorts with a motor cycle and forecar, by conveyingpassengersfor short trips in the locality for a small fee."

"MOTORCYCLISTSPASSINGalongthe main road of Glamorgan between Swansea and Cardiī need to exercisecaution, as quite recently several of the village police stations have been placed in telephonic communication with each other. Thepolice telephone the numbers of motor cycles, and the time they pass, to the next village."

"AT THEHALF-YEARLYmeetingofthe South Eastern Railway the chairman attributed the falling oī in the receipts for passengertraīic during the past six months to the competition of motors, and 'motor cycles in particular'."

"THE INCREASINGUSEofsilencer cut-outs was noticeable at the week-end. Many riders made use of them when negotiating hills. When □ðttedcloseto the exhaust port the bluish □ðamesof the explodedchargesproduce a curious eīect at, night, this beingmore notice-able on some machines than on others."

"A NEWGRADEofpetrol, to be known as the 'Shell Motor Spirit', is about to be marketed. The two gravities I will be 'Shell A', about .700, and 'Shell B', about .715. To meet the convenience of motor cyclists it will be put up in gallon cans.".

"MOTORCYCLETAXATION.ONSATURDAYacase was before the Bridlington Bench against a motorcyclist for driving a motorcycle and drawing a trailer, having only paid the Inland Revenue tax on one vehicle. His defence was that he had made enquiries from the Post Oīice and the Inland Revenueoīicer and had been informed that they did not know what to charge him. The summons was, therefore, dismissed. As the Auto-Cycle Club are approaching the Board of Inland Revenuein order to get motor-cycles exempted, a policy of waiting may be best."

THE GLORIOUS "FIRST."

"IT IS ONLY WITHIN the last year that lamp manufacturers have put lamps on the market specially constructed for use on motor cycles, but nothing certain is known about their usefulness. All lamp manufacturers should be invited to construct a lamp specially suitable, and these should be tested by an impartial and expert body."

"SEVERAL CORRESPONDENTS have communicated with us during the last few weeks complaining of the way the weights of machines are under-estimated in advertisements of motor cycles. In one instance a gentleman from Brighton was informed that a machine loaded weighed 130lb; when delivered it weighed 190lb. Readers are recommended to scale their mounts on delivery, as we have proved from our own experience that many machines are greatly in excess of catalogue weights."

"THE SPRINGFRAME models at present on the market have met with much favour, and used over fairly good roads prove a luxury; over the majority of town roads, where one's pace is lessened to a degree, an appreciable diīerence is found."

"EXPERIMENTS FOR THE prevention of dust are being carried out in many parts of the country by painting the surface with tar, or sprinkling with oily compounds. Some of the processes are said to be successful, but very costly, and it is questionable if they can be undertaken on a large scale within a reasonable expenditure except in very populous districts."

"THE MOTOR CYCLING CLUB DINNER. The second annual dinner of the Motor Cycling Club was held at Frascati's Restaurant, Oxford Street, London [where the club was formed] on Tuesday evening, January 5th. The number of members and friends present on this occasion was much

larger than last year, no less than 80 being present. The function was held in the large Banqueting Hall. There were present many of the leading spirits in London automobilism…After the toast of 'The King', Mr T McDonald Rendle gave a speech cast in a humorous strain in which he touched lightly and frivolously on various phases of the progress of motorcycling and the curious ideas of the death-dealing powers of the new machine entertained by many of the public."

"Flashlight photograph taken at the Motor Cycling Club dinner."

"COLLECTING NUMBERS. THE 'COLLECTING' hobby springs eternal in the juvenile breast (if that is the part of the human anatomy in which one carries one's hobbies!). One of the favourite pursuits of the genus small boy has been collecting the names of railway engines: a more up-to-date hobby has now presented itself to the mind of the enterprising youngster, in the collection of the numbers on motorcars. On a drive through Surrey during the □ðrst week of the year, we noticed several lads who had taken up positions by the side of popular roads, and, notebook in hand, were carefully taking down the numbers on passing cars. However, anything tending to interest the rising generation in motors is good for the cause."

"A VAPOUR-PROPELLED motor-bicycle has been invented by a young French naval engineer, Mons R d'Espujois."

"Watering carts put in their appearance again in many of the suburban roads around London last week. Dust lay thick on the roads, even near town, and goggles were again required."

"The □ðrst London newspaper to employ motor cycle riders was the Evening News The □ðrst rider was Walter Blake, and so successful was the experiment that he now has four comrades. Mr Blake has had only three roadside stops in 12 months' riding—one side-slip and two punctures."

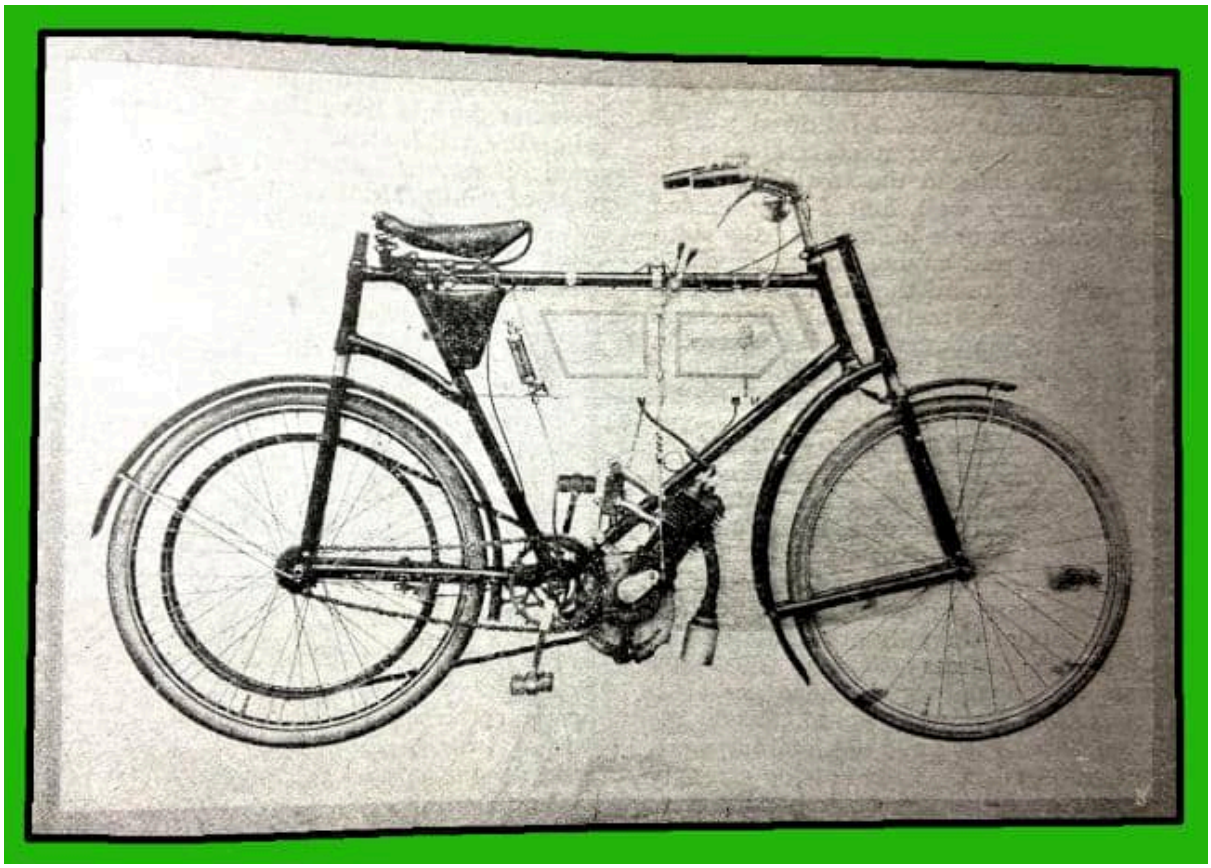
"MUCH IS BEING written and spoken just now on the question of the horse vs the motorcycle, and the matter of substituting a motor cycle corps to perform some of the functions of cavalry is being discussed in all its bearings."

“AT A RECENT AUCTION sale at a London Mart some thirty motor cycles were sold under the hammer. Over three-fourths of the number were □ðtted with engines of from 1¼hp to 1¾hp. This further indicates that the chief demand now is for slightly more powerful machines.”

After a few months’ publication in 1902 Motor Cycling was been absorbed into The Motor, leaving Motor Cycle as the sole magazine devoted soley to motor cycling. However The Motor devoted plenty of pages to two and three-wheelers. (Scroll down for a comprehensive report on the motor cycle exhibits at the Ninth Annual Motor Show.)

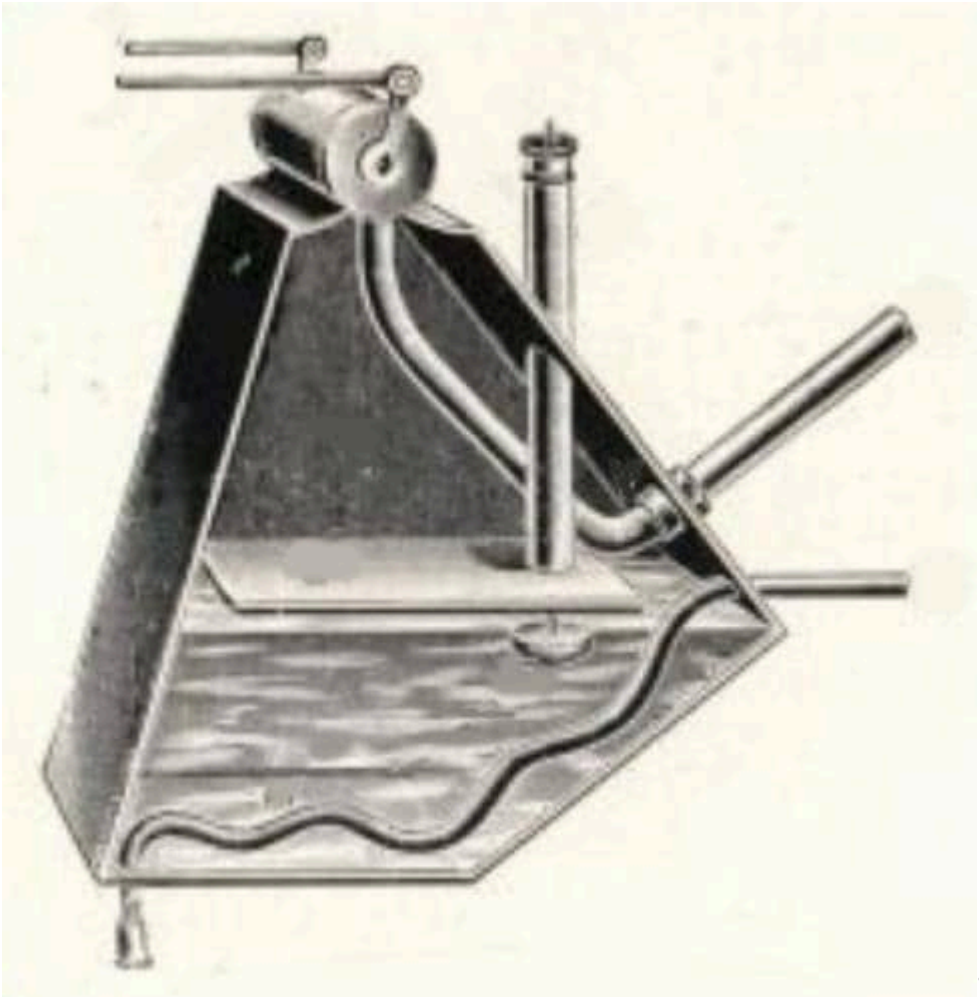
“SIR,—I BEG TO send you a photograph of a spring frame for motor-bicycles, which I consider very essential from the point of view both of ease of running and greatly lessened vibration. On examination it will be seen that a short length of tubing is □ðxed in front of the steering head or stem, giving the bicycle somewhat the appearance of having two heads. In this extension a tubular prolongation of the fork crown is allowed to work up and down with a piston or telescopic action; its movements in either direction being checked by means of buīer springs. To allow of the staying of the lower ends of the front fork tubes these latter are attached by means of two hinged tubular stays to the lower end of a member or support made of two lengths of D-tubing, these being aīixed to a lug on the lower end of the steering pillar. The two D-tubes in question are built apart to allow of the steel mudguard being □ðtted. It will also be seen that a similar telescopic movement is arranged for the back fork, the chain stays being hinged near the bottom bracket. It will be noticed from the illustration that there are very few working joints, and these have been so arranged as to reduce the movement to a minimum. The frame and fork can also be used as a rigid machine at will. I might mention that during the tests through which the bicycle has been put it has been □ðtted with ordinary Clipper 1¾in cycle tyres. I have so arranged my invention that every part of the fork, etc is a strengthening part or support for the other, and the experimental machine is built up of light gauge material. Therefore, I claim that it can be ridden with every con□ðdence; and even if it should happen that the springs give way, which is not at all likely, the rider can still continue his journey safely, as though on a rigid frame. The advantage of a spring frame and fork for motor-bicycles is that it can be ridden during the winter months □ðtted with solid tyres, thus preventing any fear of skidding, or side-slip; and I am convinced it would give every satisfaction, as I have allowed of a vertical movement of an inch and a half. The frame is suspended between springs, these being □ðxed at the extreme ends, thereby avoiding any vibration at the handlebar, saddle and pedals. It is also perfectly rigid laterally. For light engines up to 2hp I have a design slightly diīerent from the one mentioned above. In this the front fork telescopes in the steering stem, which gives the bicycle the appearance of an ordinary bicycle and this class of fork is also adaptable to ordinary pedal

propelled cycles. Theframes can be built for either position of engines, vertical or inclined, as desired. Thecycle illustrated has been in daily use for the past six months and during that time it has been ridden by experts and has given entire satisfaction.
ThosAshburn, 115, Sommerville Road, Small Heath, Birmingham."



"Spring frame Bicycle referred to in letter from ThosAshburr."

SPRAYCARBURRETORSwerereplacingwick-in-a-tin 'surface' carbs (which, let it be noted, were known as 'bubblers'). Rubberand canvas V-section belts were replacing twisted rawhide belts and mechanical inlet vales (MOIV)were replacing automatics (AOIV).Tyreswere growing from two to three inches wide. Other innovations included high-voltage magnetos, Bowden cable controls, clutches and sprung forks.



This De Dion surface carburretor doubled as a petrol tank.

"THOUGH SOME DOGS are sworn enemies of motor cycles, others are enthusiastic pro-motorists. One, a well-bred wire-haired fox terrier named 'Rip', is as much devoted to the motor cycle as his master. After his □ðrst trailer ride he sat down outside the cycle shop from which it was hired and watched it with admiration till darkness set in."

"STAGE TRACK-RIDING and exhibition riding on motor cycles are not altogether innovations, for about a couple of years ago we remember seeing such feats performed by a well-known motor cyclist at a London music hall. For this class of riding the machine must naturally be geared down considerably."

THE FIRST MOTOR cyclein India was dubbed 'shaitan-gari' or 'devil-carriage. The rider lived 1,700 miles from the nearest petrol.

RACERS WERE routinely exceeding 60mph.

"GA BARNES IS BUILDING a light road machine □ðtted with the Stevens 2¾hp engine, and wood rims. The rims, which were specially made, are designed for Constrictor road tyres, which are bound to the rim with canvas in a similar manner to the racing tyre."

"IN A SPORTING daily the petrol tank of a racing motor cycle is referred to as the 'essence cistern'."

“ON THEQUESTIONofhotel charges a correspondent says: ‘I am a pedestrian, cyclist and motorist, and in each capacity I have called at a small country hotel in Kent. On the □ðrst occasion I arrived on foot, and was charged 2s for a meal. About a week later I rode there on a cycle, and was charged 3s 6d for a similar meal. The climax came a few days ago when I stopped at the same hotel, this time on a fairly expensive-lookingmotor bicycle. Without a blush the landlord demanded 5s for a meal precisely similar again.'”

WITHINSIXmonths 21,521 motorcycles and 18,340 cars had been registered (lower cost made two wheels more popular than four). Just 770 motorcycles were exported; 979 were imported.

INDIAN ADOPTEDtwistgrips way ahead of the pack, though Werner had pioneered them for racing.

HIGH TENSION VS MAGNETO IGNITION.

Sir,—Asthe question of ignition still appears to be rather a vexedone, we must make this our excusefor writing you on the subject, as we thought possibly our experience would be useful to you. We have just completed a long series of extensive experiments with practically every known system of ignition, and as a result we have decided to retain the well-known high-tension system upon our cars this season. Our experience is that for all-round satisfaction the high-tension system is very hard to beat; speaking broadly, there are no working parts which are at all times apt to get out of order, and if any trouble is encountered the fault can usually be traced by the merest novice, whereas with the magneto form of ignition any derangement is usually outside, the scope of the averagedriver’s capabilities, and the result is that the whole apparatus has to be removed and returned to the manufacturers for repairs. With the high-tension form of ignition the most important detail which requires attention is the accumulator. A good quality coil practically never requires any attention whatever (we are prepared to □ðtinductioncoils with one, two or four tremblers) and the only attention needed to the commutator is occasional adjustment and cleaning of the platinum points. Sparking plugs have now reached such perfection that defect is seldom experienced, and with careful driving the sparking plug points should rarely require cleaning. To overcome any likelihood of trouble with accumulators we are this season □ðttingtwoaccumulators with two-way switch within easy reach of the driver, and will also in addition supply, free of charge, a spare four-volt accumulator. All insulated wires and terminals are thoroughly protected, and providing the driver occasionally tests his accumulators, we think that ignition troubles will—at any rate on Ariel cars—be few and far between.

The Ariel Motor Co.

Dahomey, in West Africa, was a French colony; this chap is presumably an administrator. Colonial models were produced by a number of manufacturers.

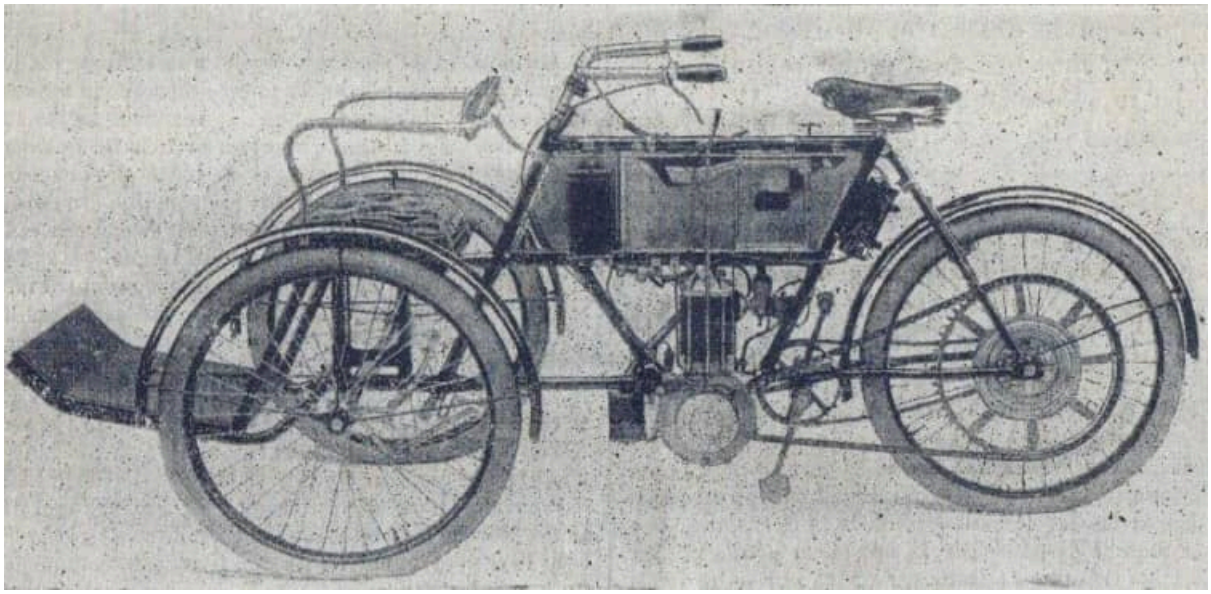
GERMANEMIGREEJohannesGütgemann adopted the name John Taylor (later changed to Goodman) and, with his partner William Gue, produced Hampton bicycles. Theytook over the Begian □ðrmKelekomMotorsand developed a 2hp powered bike which they marketed as the Veloce (Italian for Speed). It was not a success, but Veloce would be back.

"THE OPENINGRUN OF THESEASONof the Edinburgh Motor Cycle Club should have taken place on Saturday, the 9th inst, to Peebles, but owing to the violent storm of a mixture of snow, sleet, hail, rain and wind, the run had to be abandoned, to the great disappointment of the members who had been looking forward to a pleasant outing. Saturday was just about as wild and unpropitious a day for riding as can be imagined, and reminded one more of a day in mid-winter rather than in spring. The club, we are informed, promises to be much stronger numerically this year, and the members are very enthusiastic. Theyare only longing for the April showers to cease. Linlithgow was the destination of the club on Saturday last, and other places to be visited in the course of this month, May and Juneare West Linton, West Calder, Haddington, Bathgate, Gullane, and North Berwick, Lauder, Falkirk, Innerleithen, Dunbar, and Galashiels."

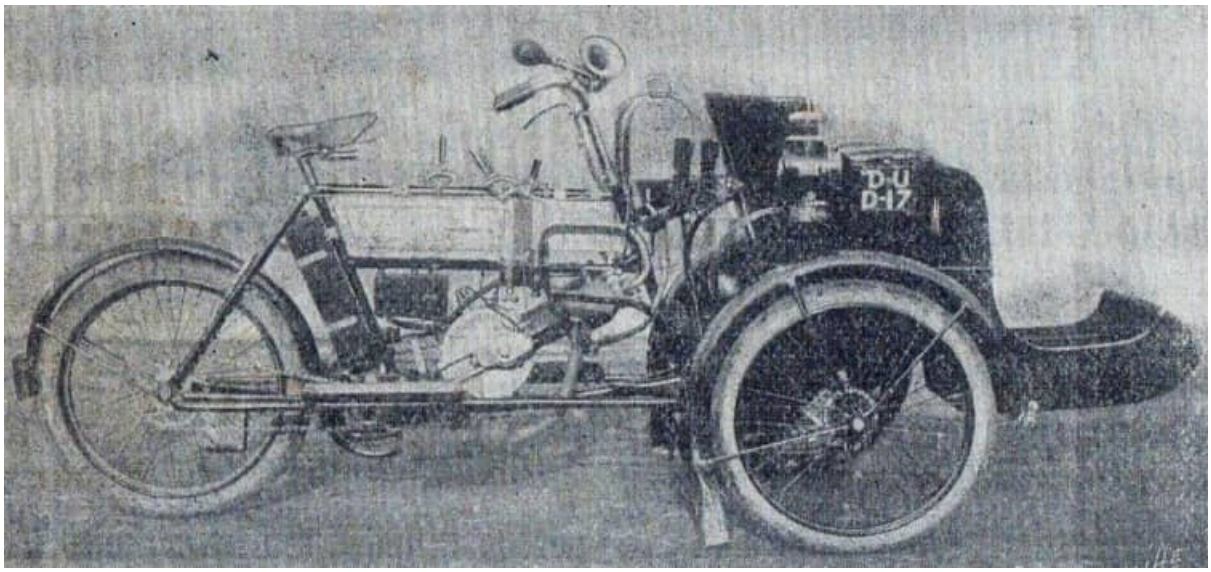
TRICARSANDFORECARRIAGESwereoutselling trailers so instead of eating dust hapless passengers served as an early form of airbag. The Motor Cycle was clearly cognisant of the

problems facing single-trackers during inclement weather: “As we have pointed out many times before, the only preventive of a fall on greasy roads is to convert the motor bicycle into a tricycle by the addition of two front wheels and steering gear. There is a slight drawback to the tricycle, and that is the storage question. This, however, in the case of enthusiastic riders, is of little moment, as they am generally □ðndsomewheretostore the machine for a small charge, and we can only hope and wait for the future, when a perfect collapsable forecarriage will probably be made to go through any ordinary doorway. The Neofold tricycle has special advantages in this direction, but up to the present the maker has not busied himself with the strengthening of the parts for motor cycle use, preferring to make a few machines to special orders as pedal tricycles. There are in the English winter many □ðnedays when motor cycling can he made very enjoyable, but it is on these □ðnedays, when the roads in places are dry and hard, that one is apt to be incautious, and run on to a patch of greasy slime before one realises the danger. During the winter season there is no doubt that the tricycle has a big score over the single-track machine. We do not wish to imply that the fact of making the machine into a tricycle renders it absolutely devoid of sideslip, but it certainly renders it perfectly safe, as with ordinary care a fall is an impossibility.” Here’s a selection of forecars and what we would now call tadpole trikes from the 1904 season…

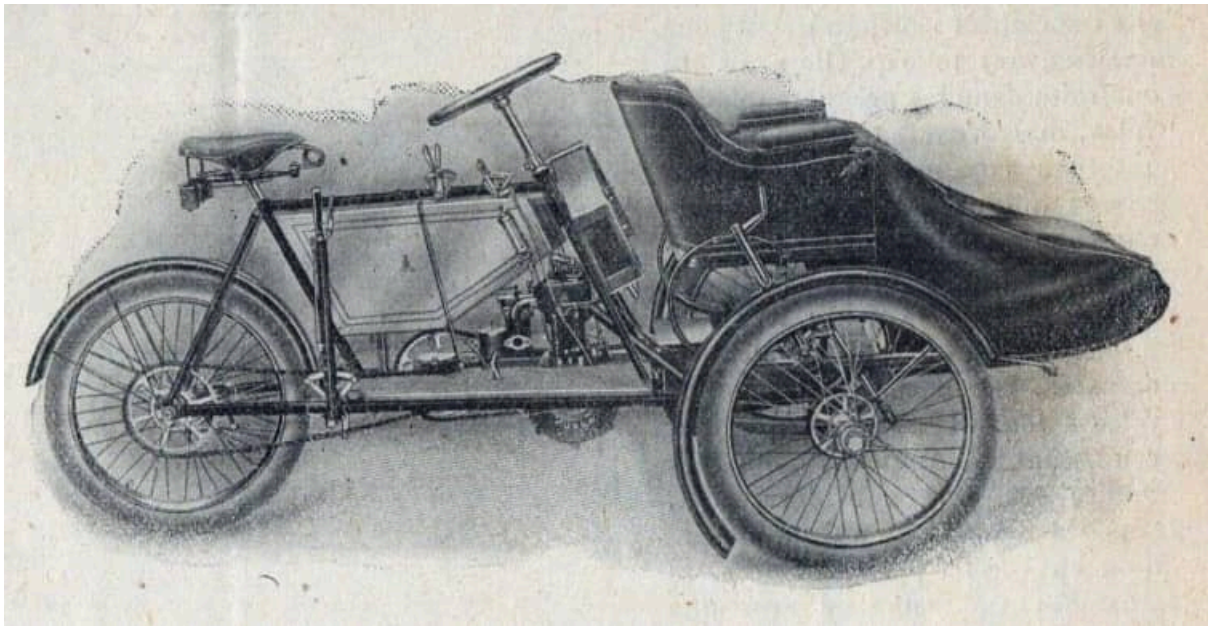
This survivor is a Griīon.



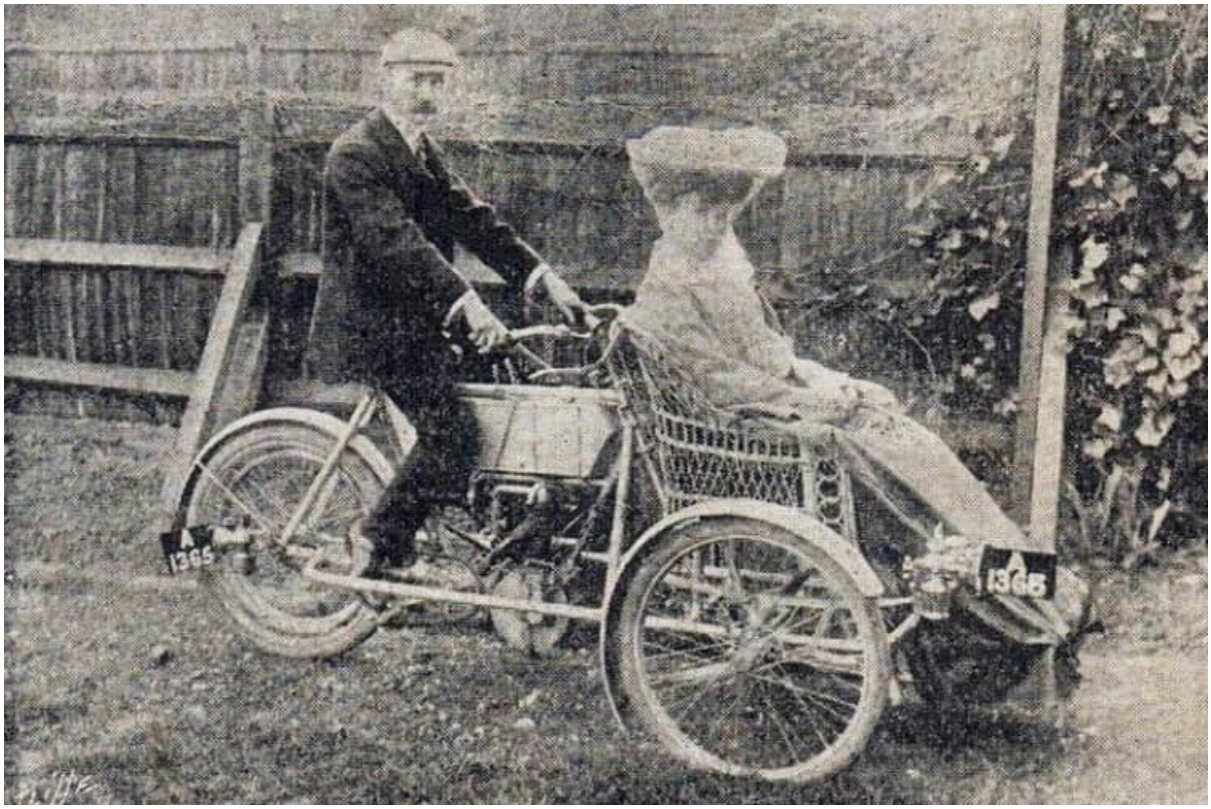
…this is a Bruneau.



Humber ‘Olympia Tandem’.



Rover(note the weather protection for the passengerand expansiverunning boards).

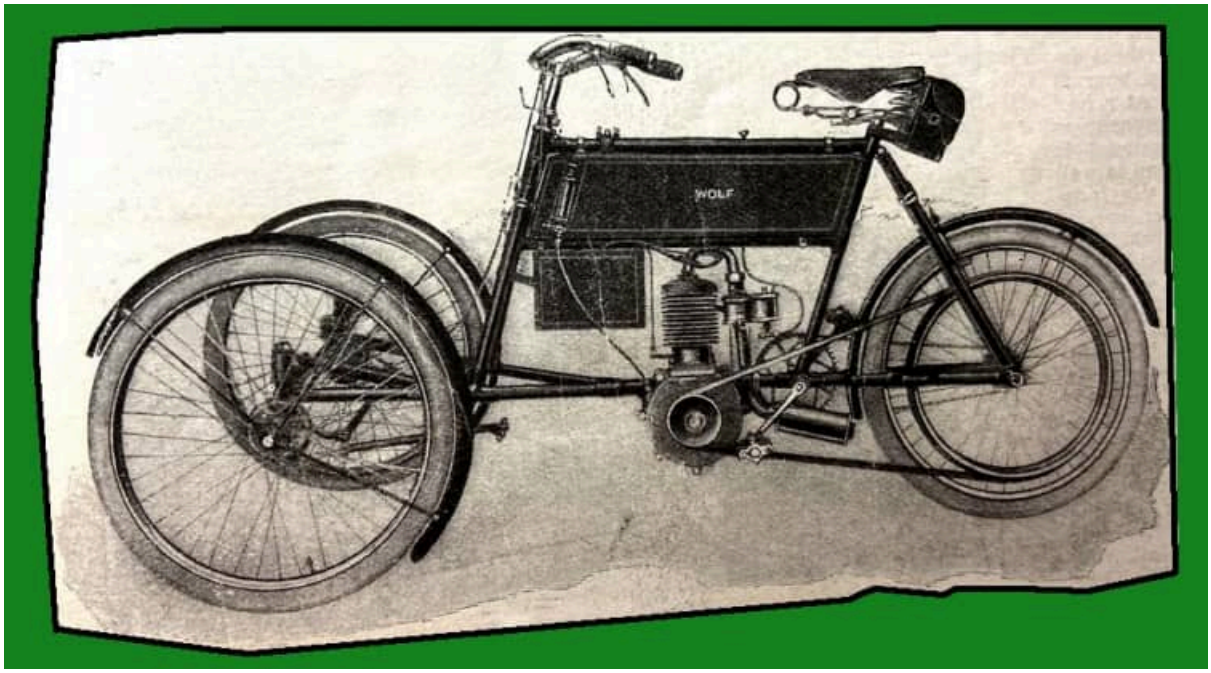


West□ðeld,summingupthe Edwardian style that marked the early years of British motor cycling.

This sporty single-seater FN is a survivor which for decades has been owned and ridden by pioneer rallyist Jean-MarieDebonneville, know to his motorcycling friends throughout Europe as Le Druide. Meilleurs vœux, Druide!

“The illustration depicts a motor-tricycle introduced by Castell & Sons, Cycle Manufacturers,

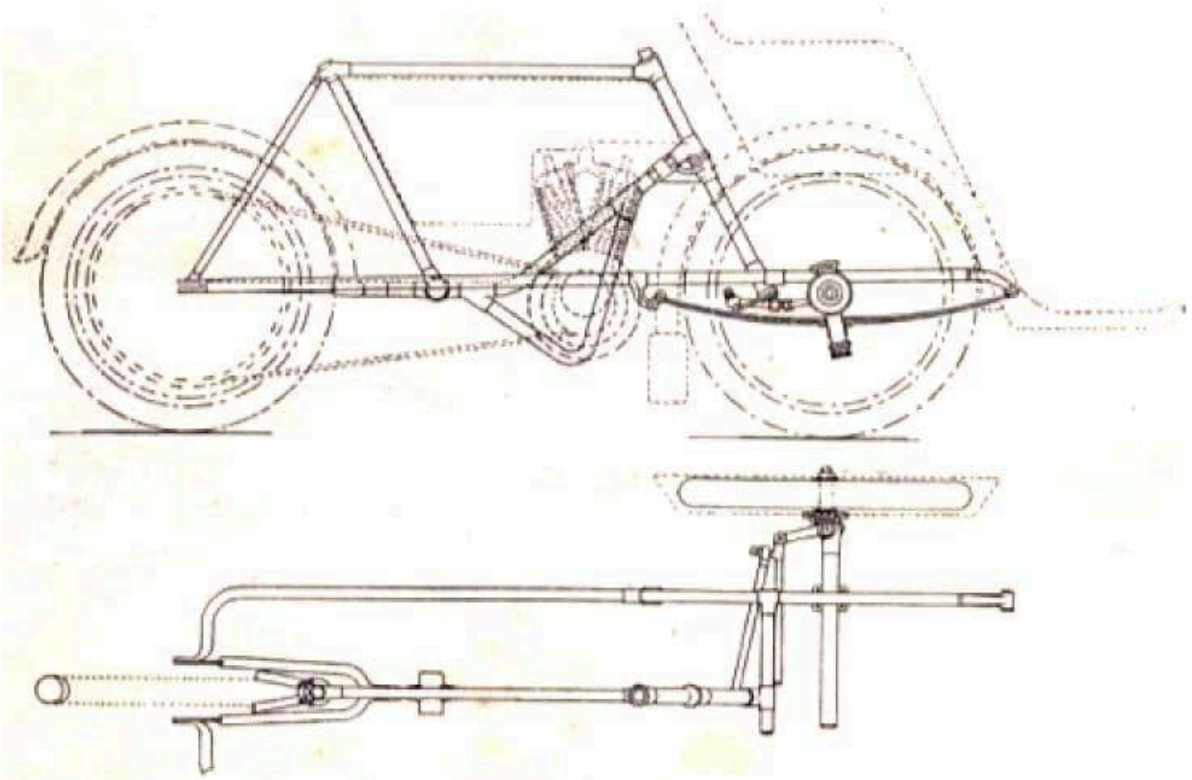
154 and 164, Malden Road, Kentish Town, London, NW. The engine is a 2¾hp Fernhead pattern mounted vertically in the forward part of the frame. The transmission is by a single chain, a clutch being □ðttedintherear hub. Theframe is so designed that the machine can be ridden by a lady or gentleman. Theengine can be started up by hand. Thecontrol and clutch gear is mounted on the handlebar and down tube. Ignition is by coil and accumulator. Theweight complete is claimed to be 150lb, and the makers state that it has been tested to climb a good averagehill without pedalling."



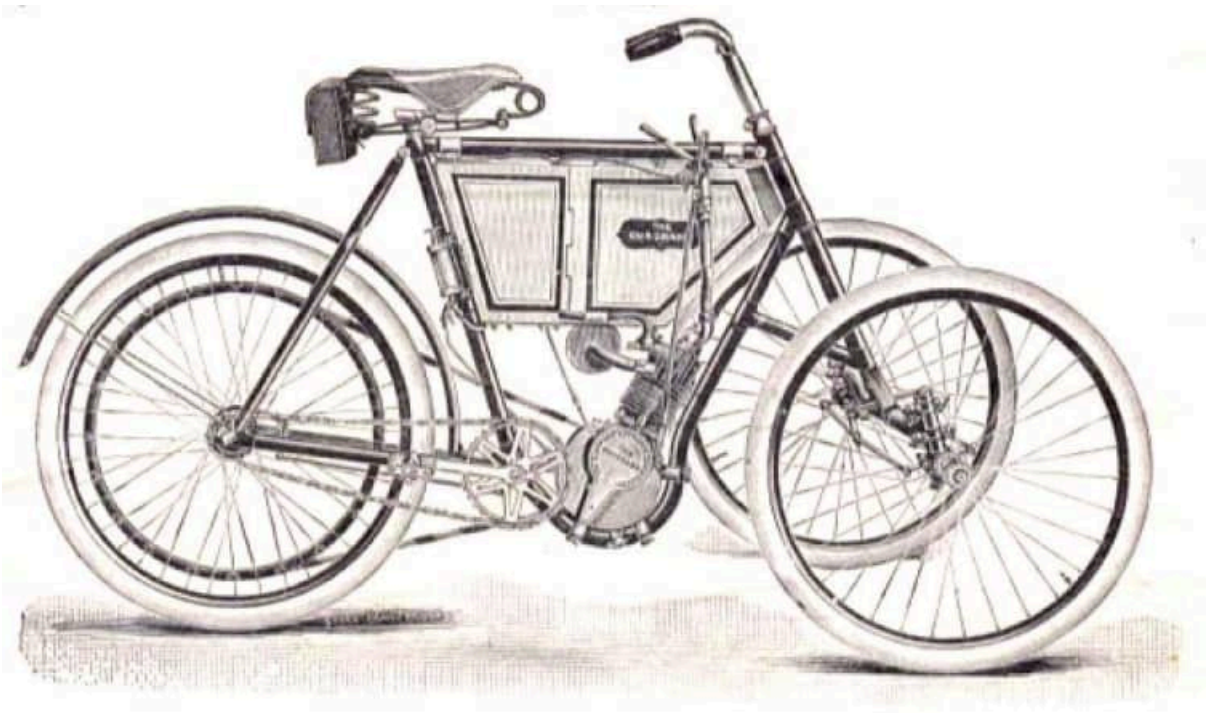
"The illustration depicts the Wolf, a new pattern of belt-driven tricycle just introduced by the Wearwell Motor Carriage Company, Thomas Street, Wolverhampton. It is □ðttedwitha 3¼hp air-cooled engine mounted vertically in the centre of the frame. Thecarburetter is a Longuemare pattern and the ignition is by coil and accumulator. If desired chain transmission can be had instead of the belt in conjunction with a free engine and Bowden friction clutch. Thecontrol is eïected by Bowden wires throughout. Thewheels are □ðttedwith2½in and 2¼in. Clincher tyres and extra large and extended mudguards are □ðtted.Bandbrakes are □ðttedtothe front wheels and a rim brake to the rear wheel. A water-cooled engine. can be supplied if wished. Theprice of this machine ranges from £54 to £64 l0s."

“Singer & Co, Coventry, have been the makers and designers of a motor tricycle ever since the introduction of the geared Singer motor bicycle with the engine in the rear wheel. By □ðttingthe motor in the front wheel and using an ordinary tricycle back axle, they have a tricycle design which is most easy to manipulate, and makes a satisfactory hill-climber. The machine illustrated is □ðttedwithanattachment for carrying a passenger (either lady or gentleman).”

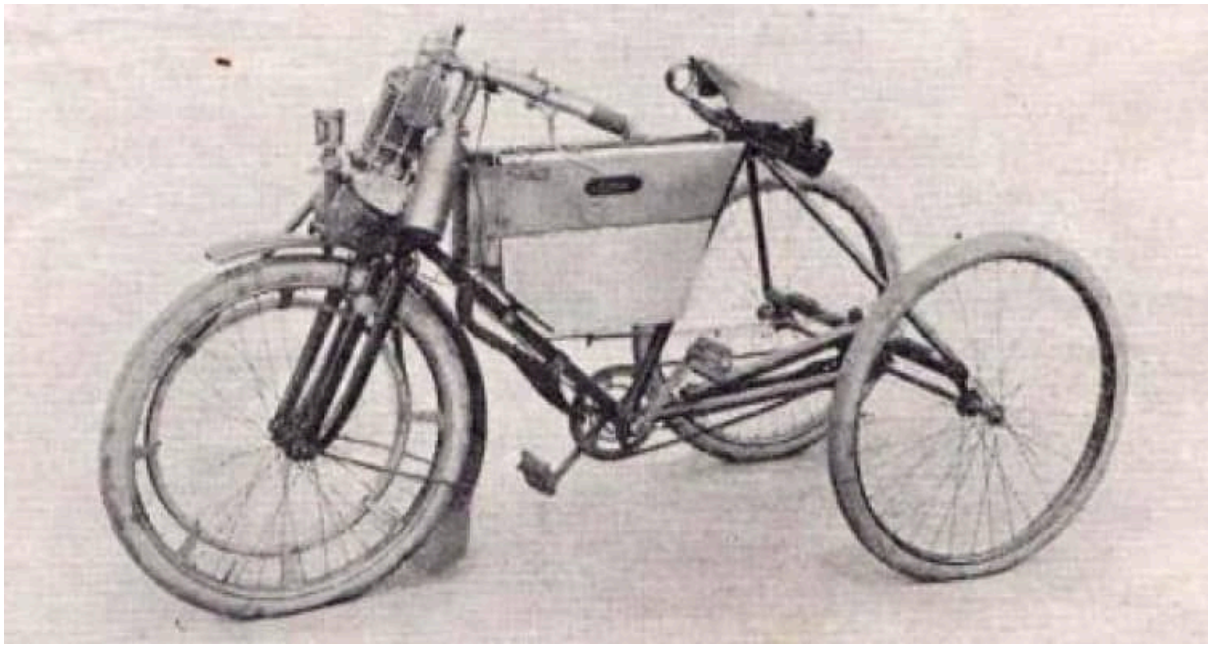
“The Abingdon tricycle is, to all intents and purposes, a motor bicycle with a diīerentially-geared back axle and two driving wheels in place of one.”



“A detachable front suitable for □ðttingtomotorbicycles is made by the Garrard Manufacturing Co, Birmingham, and has, we are pleased top inform our readers, been designed for front springs. This should prove a most comfortable form of tricycle.”

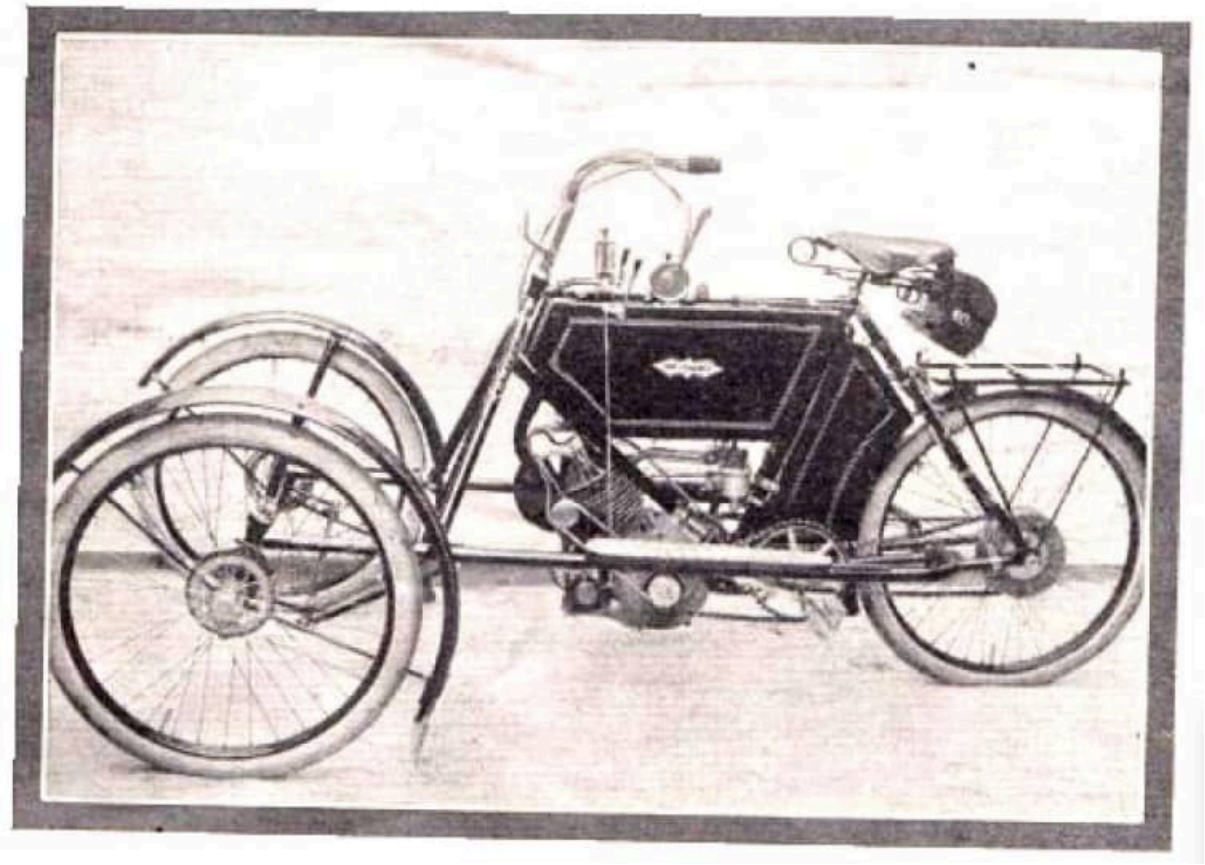


“The Quadrant motor tricycle is exactly the same as the Quadrant motor bicycle in every respect except for the front fork, thus possessing great simplicity in the working parts and easy accessibility to the motor exactly as in the motor bicycle. By the substitution of front fork and steering wheel, this tricycle can be converted into a bicycle with ease.”



“The front-driving type of motor bicycle, though practically obsolete, has nevertheless certain distinct advantages, such as handle-bar control, eīiciency of drive, and unrivalled air-cooling properties, and it lends itself to very ready conversion into the machine illustrated. The rear part of a Beeston Humber tricycle was employed. The bottom tube was cut oī some 16in forward of the bridge and bolted to the chain stays of the bicycle. The fork ends of the bicycle are clipped to the back brackets of the tricycle frame, and the bicycle seat stays are replaced by divergent stays running from the pillar bolts to the ends of the tricycle bridge…none of these citments involve cutting o other disturbance of the bicycle parts, which can be replaced in a comparatively short time.”

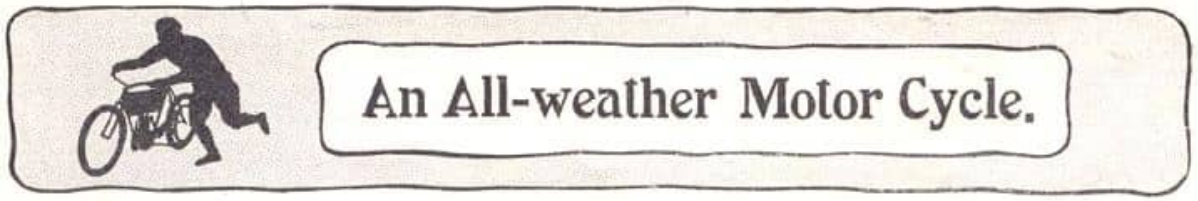
“THE ILLUSTRATION BENEATH is that of a 2¾hp Phoenix tricycle. This machine is □ðttedwith magneto ignition. In writing to us, Phoenix Motors say: ‘We think that there is a growing demand for a really good and eīicient light three-wheeler which can be started by hand and driven after the manner of a car, as is the case with this machine, it being □ðttedwithour two-speed gear, clutch, and free engine.’ Phoenix Motors recognised some time ago the necessity of making an attachment for bicycles, and now make one called The Trimo forecarriage, which suits other makes of bicycles besides their own. The illustration shows this without the seat attached for a passenger, as it can be supplied with or without the seat. To detach the seat does not take more than □ðveminutes. Thus the rider always has three machines in one—safety, tricycle, and forecarriage complete. This □ðrm were practically the □ðrst to make a successful fore-carriage machine, and have had a vast amount of experience in suiting riders’ requirements in this direction. The width over all is 3ft f5in, and the approximate length is 8ft with the attachment aīixed.”



“A new Pattern Phoenix Tricycle, □ðttedwithMagneto High-tension ignition.”

“THE GEARDRIVENtricycle introduced by the De Dion-Bouton Co is now almost obsolete, but similar machines can be obtained now from the Ariel Motor Co, which alone continues to manufacture a few of this pattern to order.”

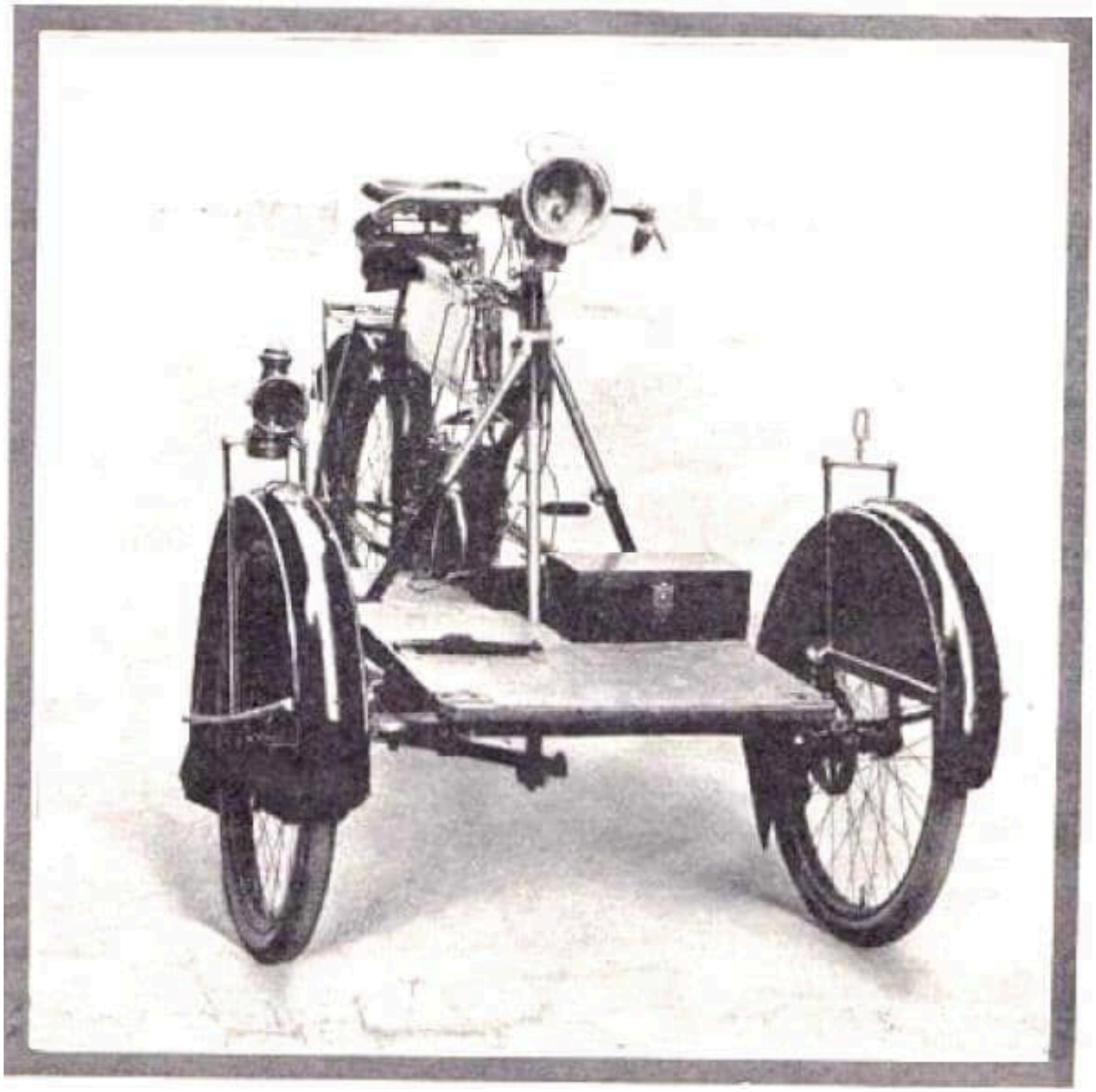
Some riders took matters into their own hands but converting their bikes into all-weather three-wheelers...



By ERIC W. WALFORD.

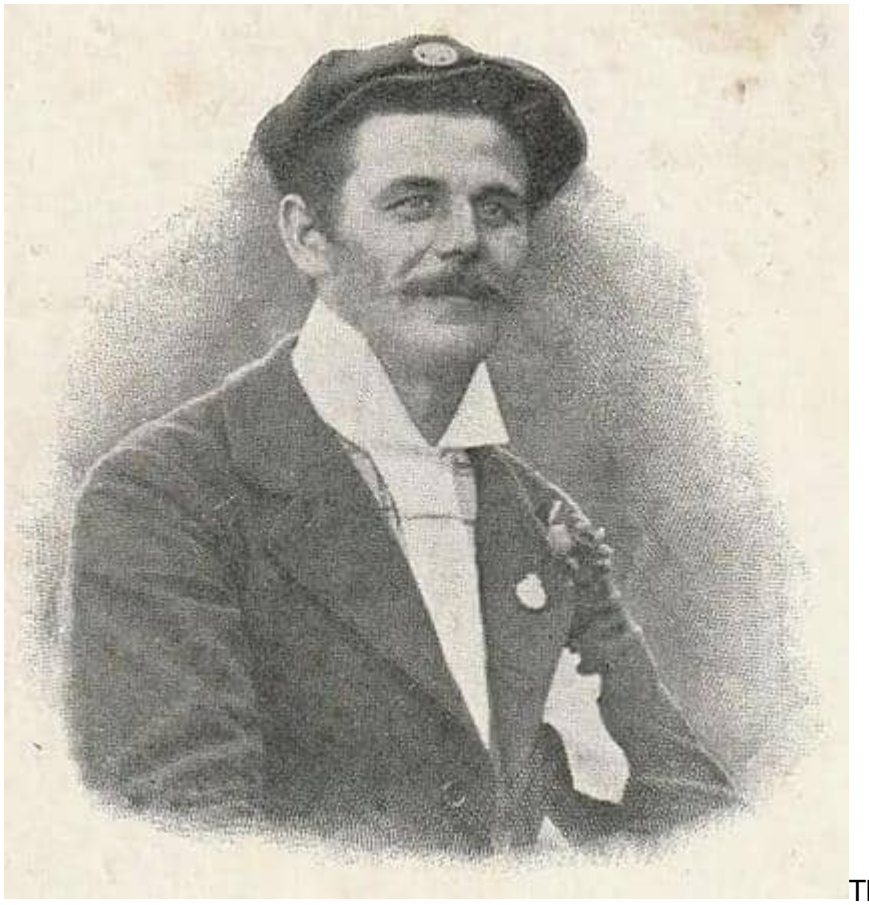
“MANY MOTORCYCLISTSmaintainthat motor cycles are useless for regular winter riding, risk of side-slip and belt diīiculties being suīicient to deter the majority. However,the ‘all-weather’ machine is bound to come, and I do not think the time is far oī when a suitable machine will be put upon the market. I have been more than satis□ðedwiththemachine illustrated, which I have been riding regularly since last Christmas, and, as most machines can be converted in the way I converted mine, it may be of interest to describe it. Themachine in the chrysalis stagewas a motor with a 2¼hpengine,but side-slips, glimpses of straying cattle on dark evenings,made me think that a single track was not safe enough, in spite of its advantages.I therefore had a Mills & Fulford Trimo attachment □ðtted,soconvertingit into a tricycle, but without a front seat. After a few miles the engine lay down and died on a hill—with a broken connecting rod, I believe. This

was before I had time to see if the power were suīicient; the machine was at the time manfully climbing my test-hill. As I had to get a new engine, I determined to increase the power to 3hp, and, after looking round, settled on a 3hp Clarendon, with a ball hearing on the crankshaft outside the pulley. This engine has been perfect in every respect, and I can assure doubters that a good 3hp engine is quite suīicient for the purpose. Mine is geared □ðvetooneonto a 28in wheel, which gives me about 32mph on the □ðat,andwillclimb any reasonable hill around here (Coventry). For more hilly parts I should add another ½hp and gear the same. The back mudguard is 4½in wide, as also are the front, the bottoms of which require wide □ðaps,as supplied by Mills & Fulford; these have to be renewed each season, as they gradually disappear. The front band brakes are operated by a pedal on the right-hand side of the machine, and if kept in proper working order are more than eīective. The advent of the 'Watawata' has overcome my belt troubles, and both my lamps are as near perfection as anything on this earth. The steering gear is strong, and is well 'lock-nutted' and 'split-pinned', and works very freely. The machine is stable as a whole, though naturally, if a right angle corner be taken fast, one wheel rises, which is more startling than dangerous. I covered over the front of the tricar frame with a platform of wood, which can be covered with rubber or linoleum. Upon this I mounted the coil and a substantial toolbox, and also some plates through which straps could be run, as shown in the illustration. This platform has been extremely useful, as, at a pinch, a passenger (male!) can be carried, and I have even strapped on a large packing case, loaded. I have used the machine very regularly, having for eight months to travel 14 miles at least each day. As a result of my experience I can safely say that it can be improved on, for its purpose, in only one direction—i.e, it requires to be spring suspended; but this is to come. The springs will greatly increase the cost but it will be worth it. As to cleanliness, I have ridden the machine in white □ðannelsandwhite boots, and arrived clean at my destination. The platform projecting back as it does, protects the rider from everything.

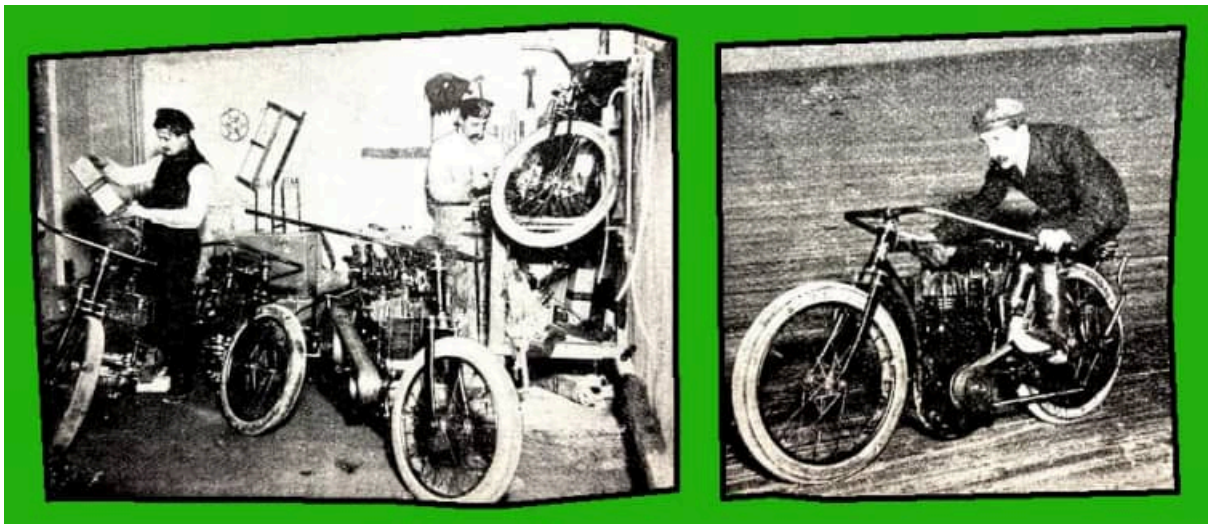


“This platform has been extremely useful, as, at a pinch, a passenger(male!) can be carried, and I have even strapped on a large packing case, loaded.”

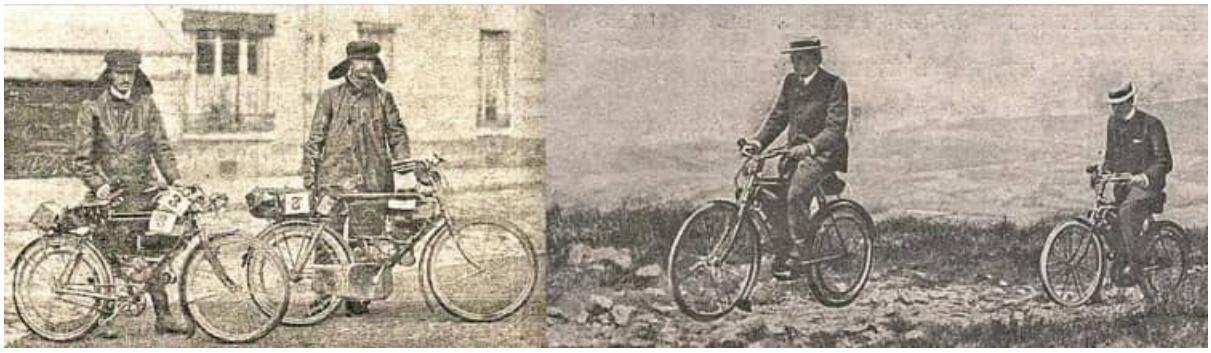
Record breaking French ace Georges Osmont rode his solo FN on a winter Tour de France, completing 2,700km in a month.



Thanks to mon ami Fanfan for this rather □ðnestudyofOsmont.



“Cissac, holder of the Motor Cycling Brassard in his workshop at the Paris Winter Track. (Right) Cissac on the Track.”



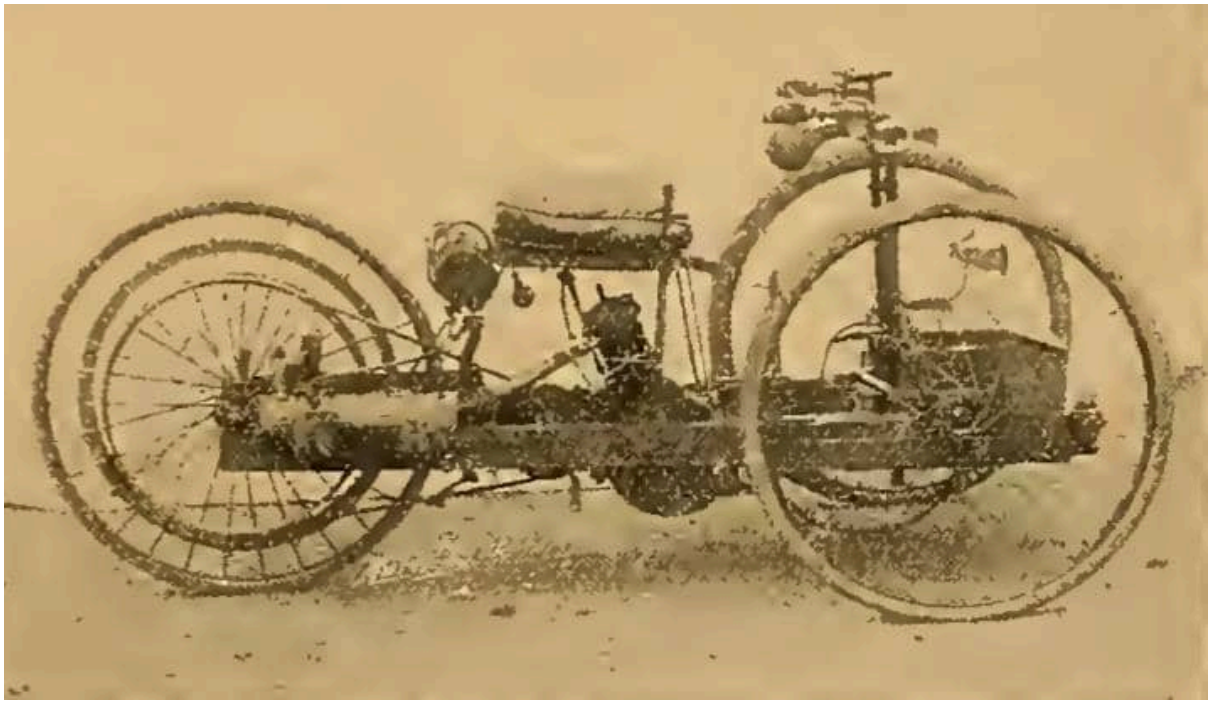
This brace of Motosacoche-powered bikes, ridden by Arman Dufaux and Francois Cuillery, were listed as the two winners of the MC de France's 1,000km Paris speed trial. (Right) To publicise the clip-on ¼hp Motosacoche engine they'd launched in 1898 (when they were 15 and 19), Henri and Armand Dufaux rode two Motosacoche-powered bicycles up the Salevemountain in Haute-Savoie to the Treize-Arbresstation.

JH Reeves, newly appointed secretary of the Motor Cycling Club, pictured in The Motor at Purley, starting point for the club's □ðrstrunofthe year.

La Vie de l'Automobile reported that a working monowheel featured at the Milan Exposition; judging by the illustration it was electrically powered and featured an outrigger.

ALFRED ANGUS Scott patented a vertical twin two-stroke engine of advanced design [and you can read an account in his own words in the 1914 Features section].

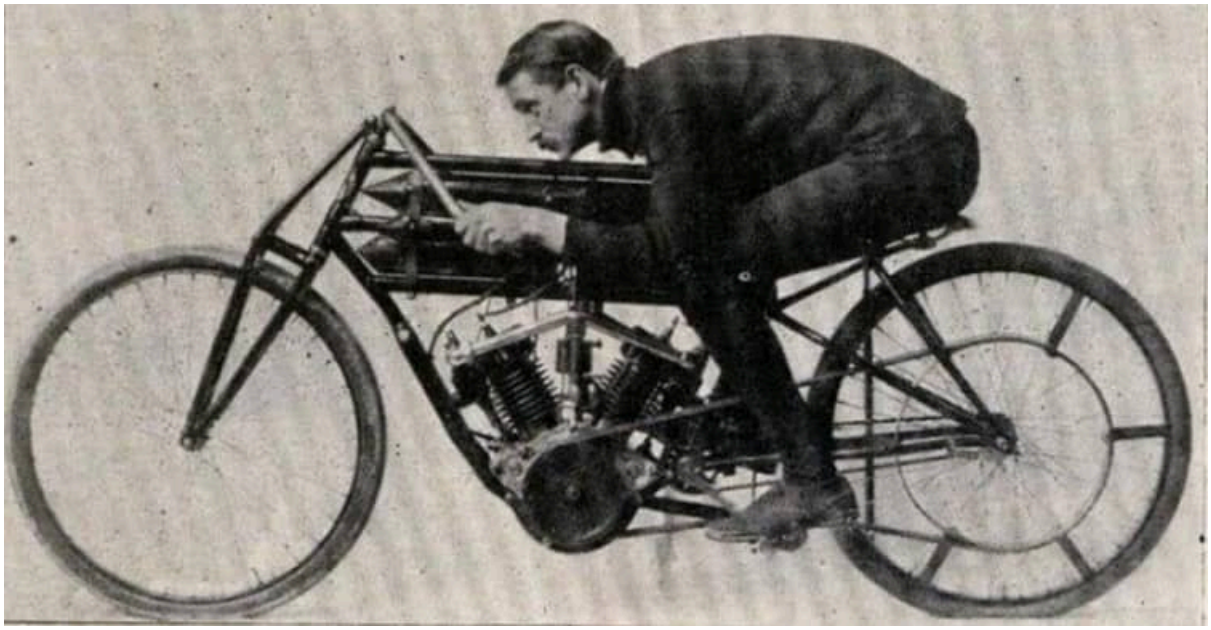
THE FOURSONS of motoring pioneer John Knight (see 1895) acquired a 1¼hp engine and built it into a trike frame made of two planks of ash, lengths of angle iron from their dad's scrap pile and the rear wheel of Knight Snr's historic car. They incorporated rubber-block front suspension and made a surface carb from a Bath Oliver biscuit tin. Knight's oldest son reported: "It is a fact that for a whole week we tried to get that engine to go, but a few spasmodic explosions were all we could get! At the end of that period, my father designed a carburettor embodying another biscuit tin containing coils of lamp wick wound on a wire frame, the petrol rising by capillary attraction up the wick, and thence evaporating very readily. Then at last the engine not only ran, but drove the machine…"



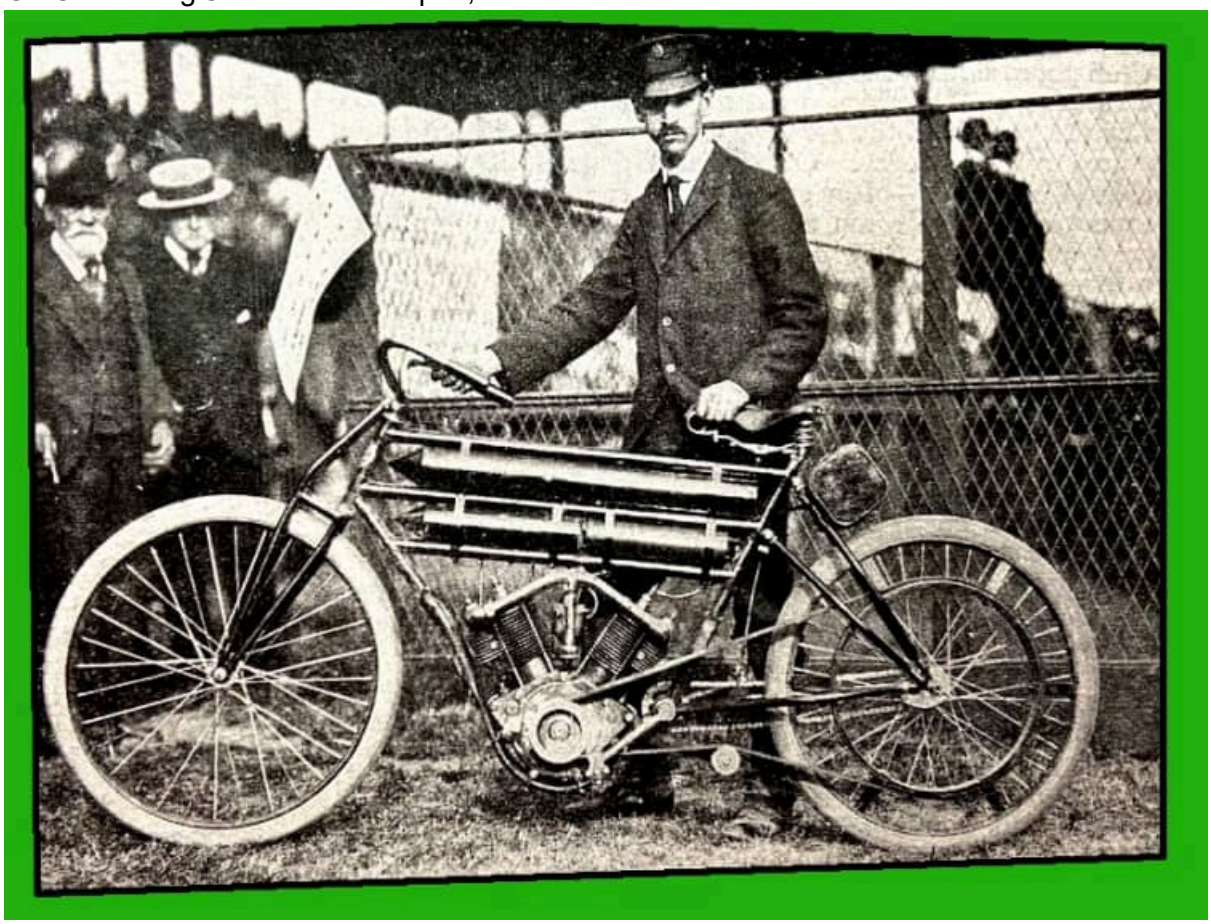
TheKnight Junior: Built from scrap parts by teenagers, but it ran.

GLENNCURTISStookone of his bikes to Ormond Beach, Florida where he set a 10-mile record for 10 miles on the hard-packed sand and did 67.3 mph. After a Curtiss beat an Indian in an endurance race from New York to Cambridge, Maryland, Hendee rep EH Corson went to check out Curtiss's Hammondsport base and was startled to □ðndtheentireCurtiss motorcycle enterprise in the back room of Curitiss's modest shop.

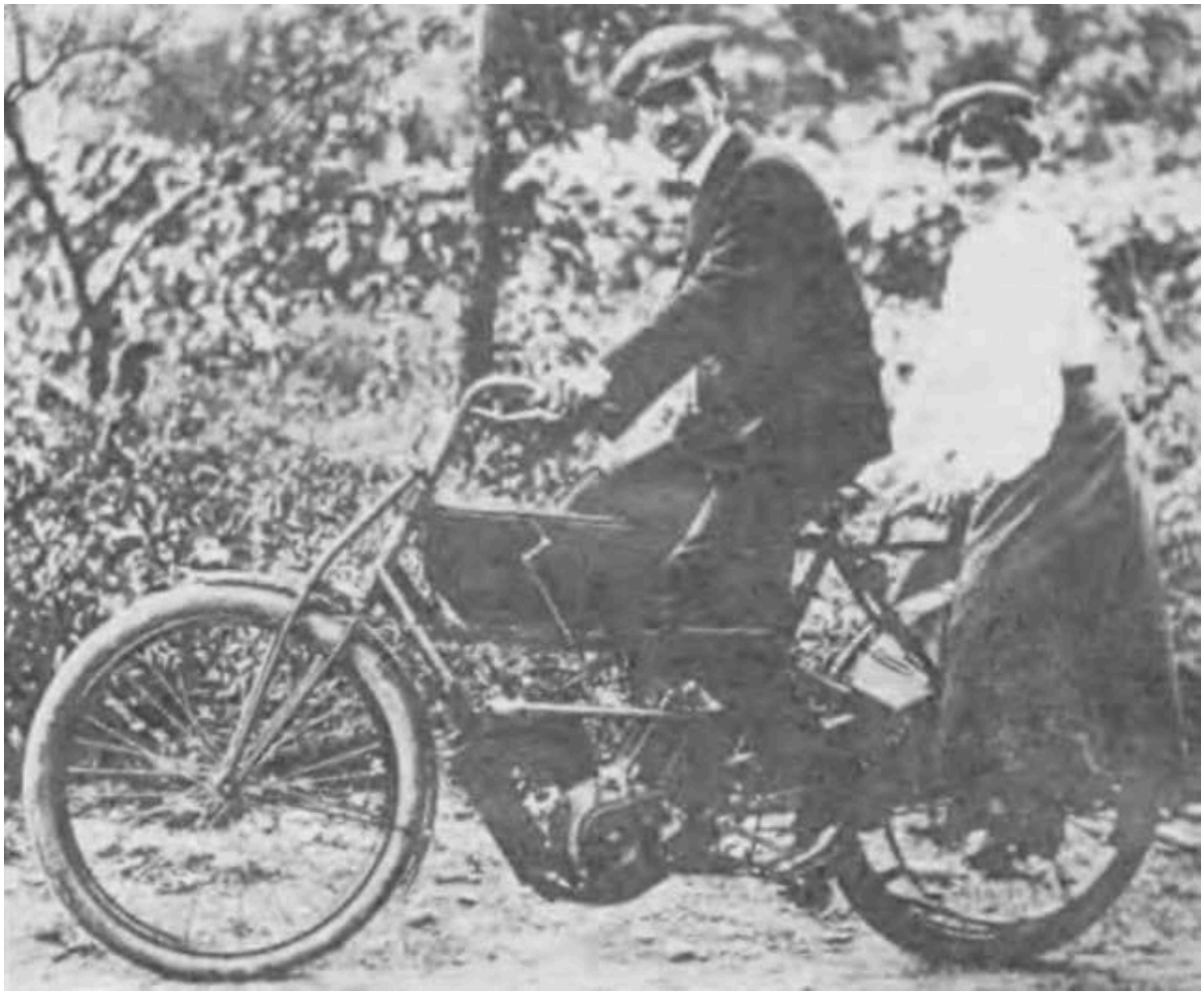
"FIRST AMERICANMOTORCYCLECHAMPION.The □ðrsthall-marked American motor-cycle champion is GH Curtiss, of Hammondsport, New York, and he won the title at the Empire City meet at Yonkers,New York, on last Decoration Day, when he defeated the pick of the 'Simon pure' motorcyclists in a fast □ðve-milerace.Curtissrodethe 5hp two-cylinder belt-driven 'Hercules'. Therewas no semblance of a race; Curtiss took the lead at the pistol-shot, and no one ever got within hailing distance. Therace brought out many of the men who had participated in the hill-climbing contest of the New York Motor Cycle Club in the morning. Curtiss had won that, and it was fully expected by the cognoscenti that he would duplicate his performance. The men were lined up near the head of the straight and came to the tape at a fair pace; but the starter refused to givethem the signal, as two or three men were somewhat in the rear, and they rode around for another start. This time they 'bunched' □ðnelyand,gettingthe pistol, dashed ahead. Half a mile had not been covered before it was seen that, barring accidents, Curtiss was the winner. He opened the gapbetween himself and the nearest man at once and steadily increased it. At about three miles he lapped the tail enders and eventually won in 6min 34sec, GW Holden being second and FW Rogersthird."



This is the contemporary caption, from an unidenti□ðedUSmagazine:“GHCurtis, on the Hercules motor cycle, with which he made 10 miles in 8min 54⅖sec, averaging53⅖sec to the mile, and making a world’s record for all distances from 2 to 10 miles. Therace was one of the events at the Daytona-Ormonde meet. Themachine has a 5hp 2cylinder motor and is made by GH Curtiss Mfg Co of Hammondsport, NY. It was □ðttedwitha Morrow coaster brake.”



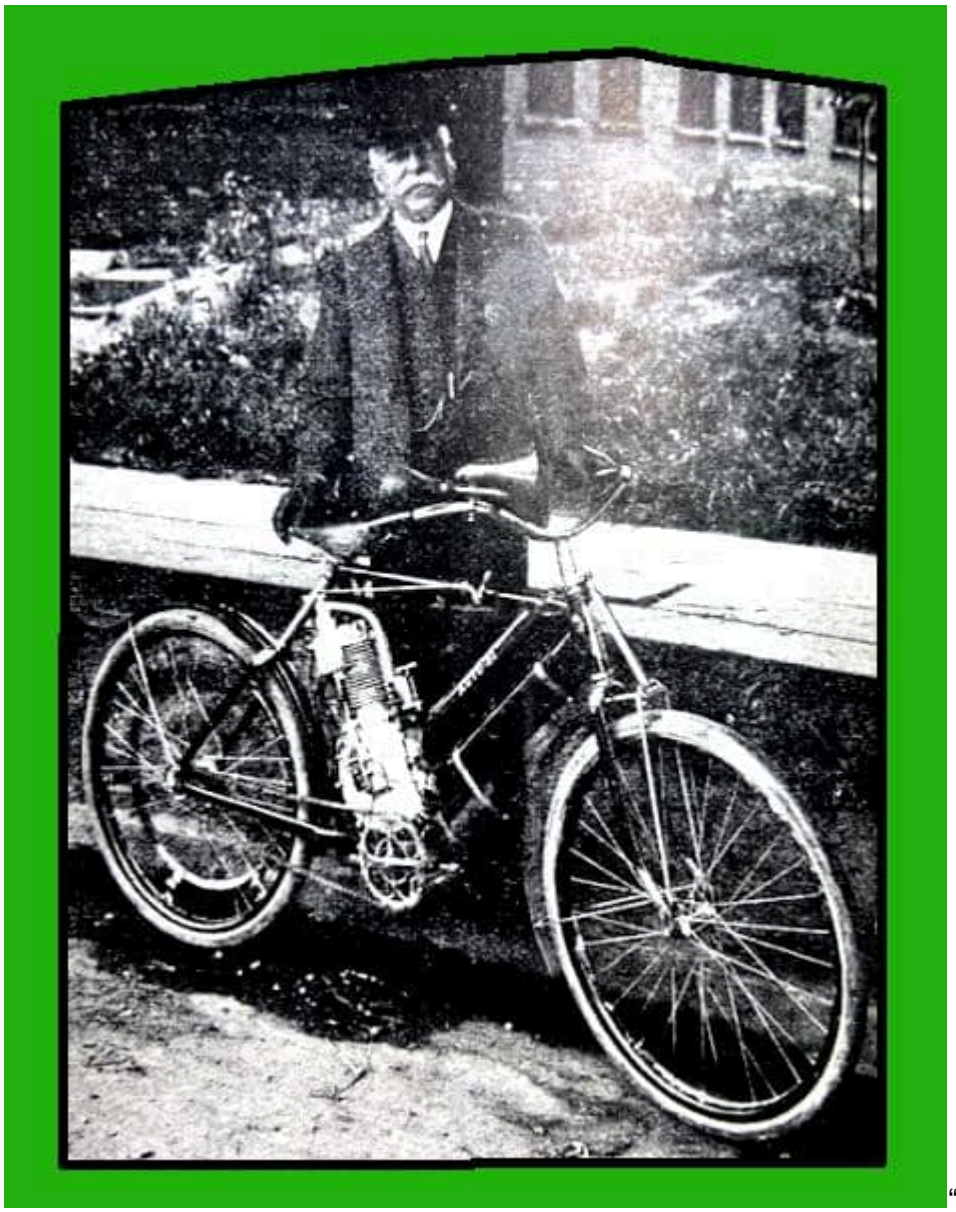
“G Curtiss and the ‘Hercules’ racing motor-bicycle on which he has won many events in America.”



The Curtiss Hercules was clearly a good all-rounder. With more comfortable bars, a bigger fuel tank, mudguards and a 'tandem' set-up there was plenty of room to take Mrs Lena Curtiss for a spin. And doesn't she look charming?

"Motoring on the Beach at Dayton, Florida."

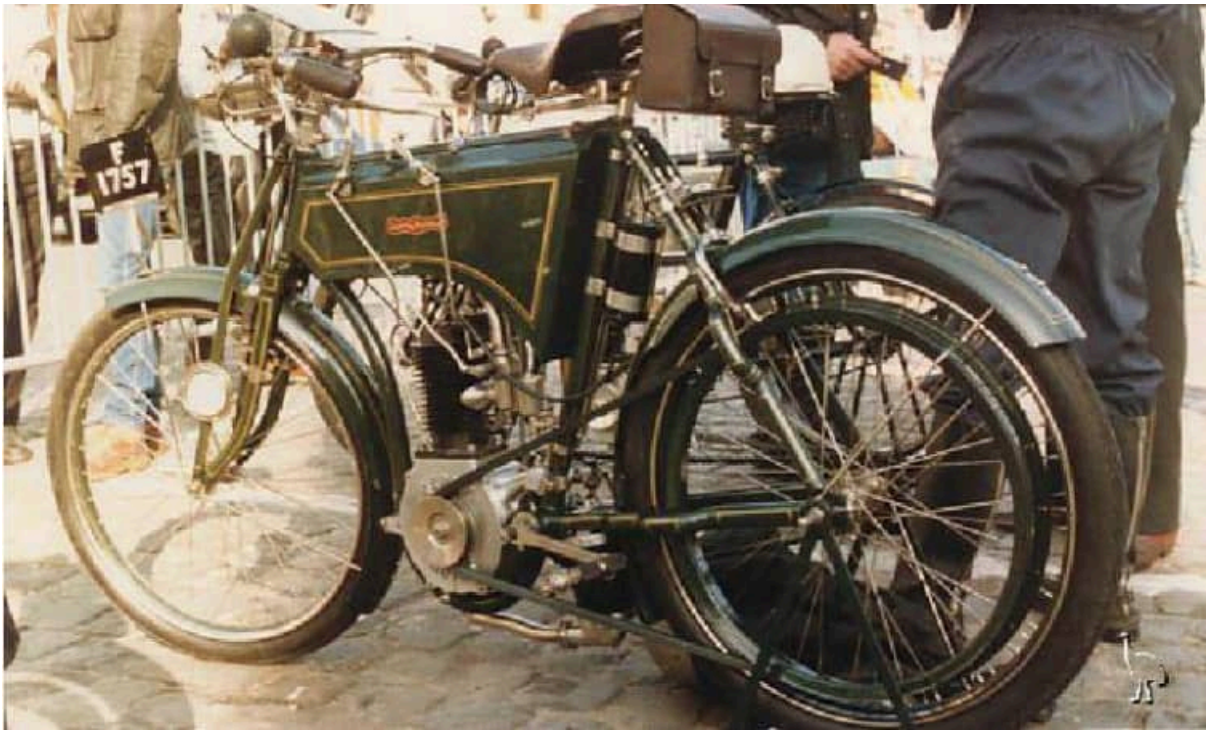
“A SUCCESSFULAMERICANMACHINE.Thepublic have come to look for great and ingenious improvements in the motor-bicycle from the makers of the Thomas‘Auto-Bi’, who are the originators of the ðrstmotor-bicycleroadster, and are today the largest and most popular manufacturers of this useful machine.”



“Mr ERThomas, the pioneer motorcycle manufacturer of America and the ‘Thomas’ Motor-bicycle.”

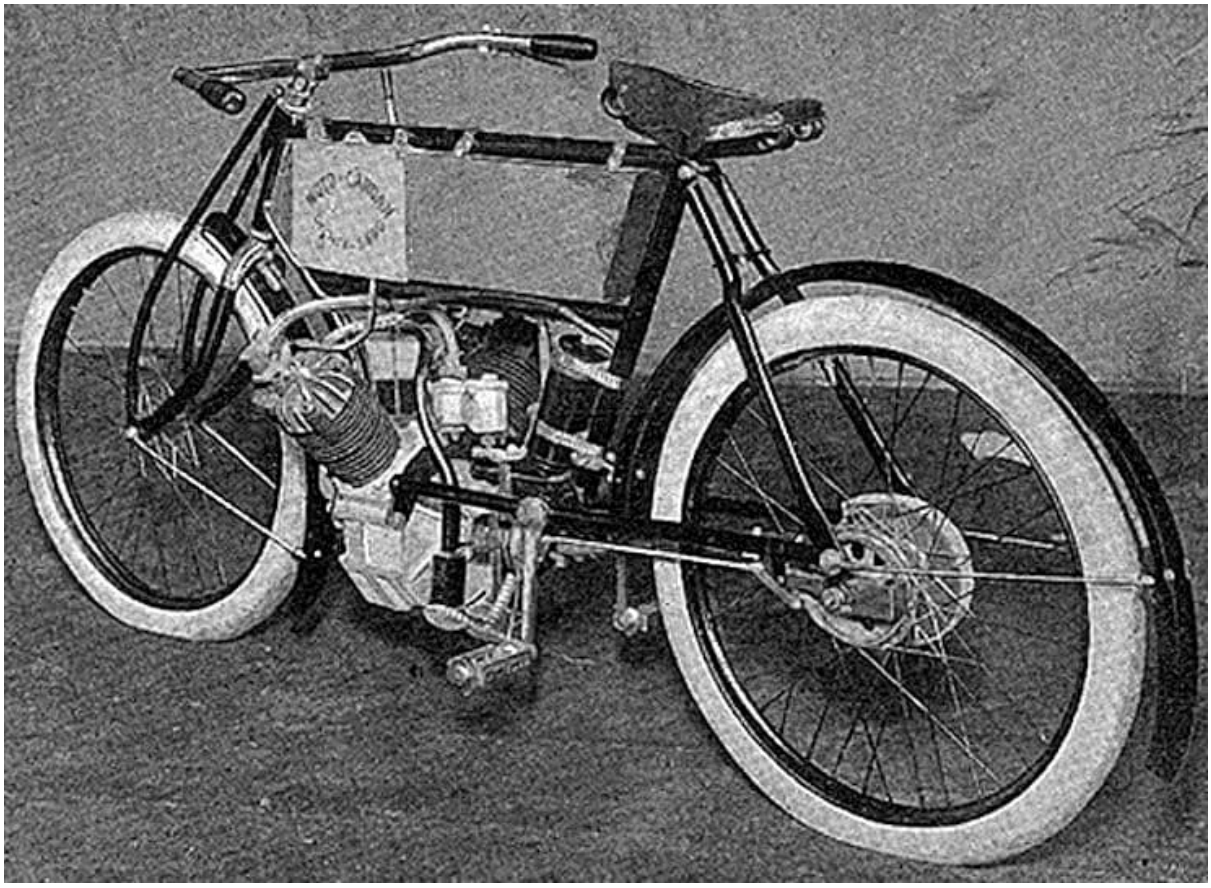
Anzani détenteur du record de l'heure et des cent kilomètres sur motocyclette « Alcyon », moteur « Buchet », carburateur « Longuemare », accumulateur « Schmitt », Pneus « Dunlop »

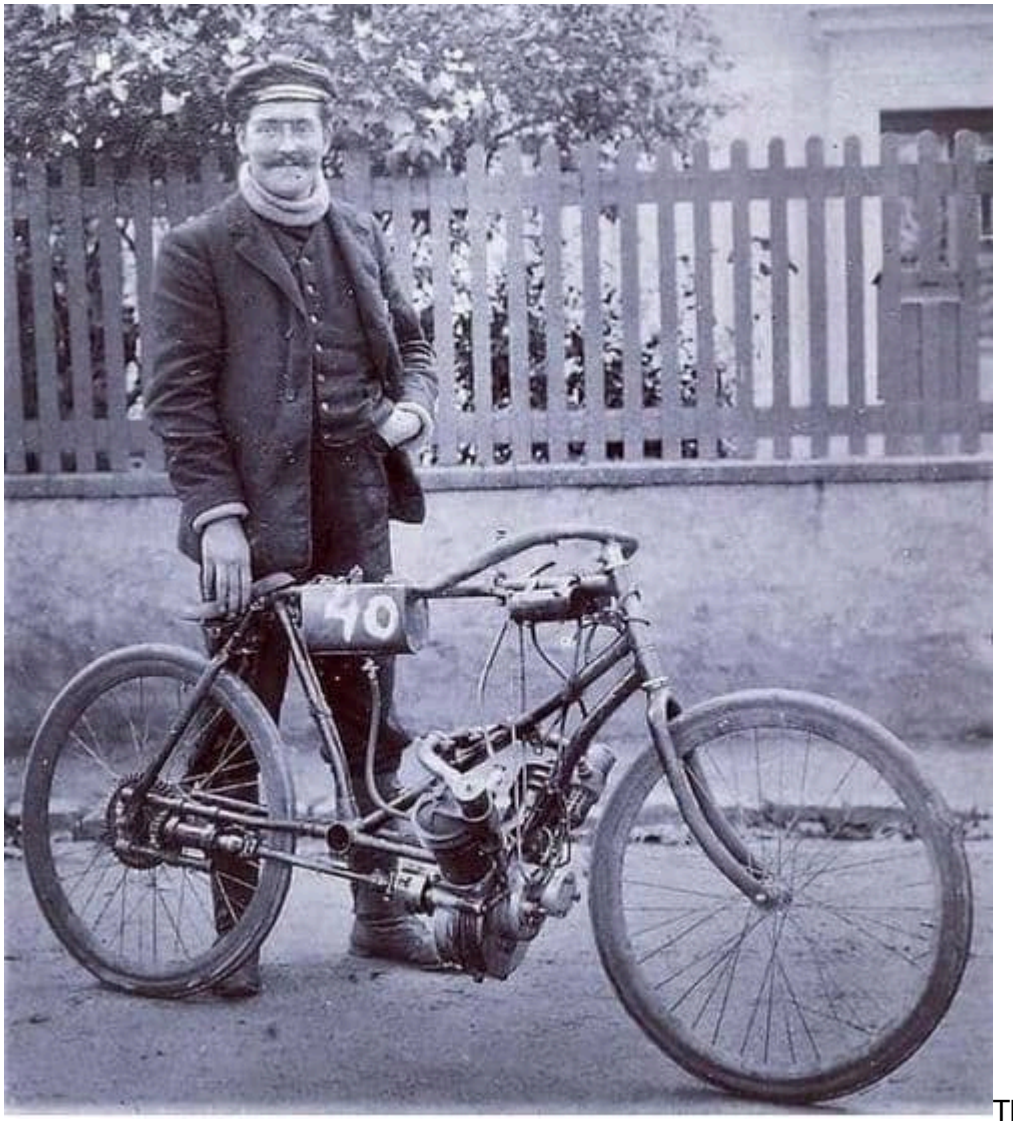
“Anzani hour and hundred kilometre record holder on an Alcyon motorbike, Buchet engine, Longuemare carburettor, Schmitt accumulator, Dunlop tyres.” His 100km record was over 88km/h (nigh on 55mph). This is Alessandro Anzani at the start of his illustrious career; he also won the 1904 French Championship and the World Championship in 1905—you’ll □ðndafullreport in 1905 of course—and that’s before he started to produce engines…



Most British manufacturers got their start with imported engines; the East London Rubber Co went further by importing complete Saroleamotor cycles from Belgium, tarting them up and selling them under the Kerrybanner, so the newly adopted British racing green livery was a tad cheeky. As Britain caught up production was transferred to the Abingdon factory, where the engines were made too.

The French 250cc V-twin Ader Cardan with a driveline patented the previous year. This was among the □ðrstshafties; time was when 'cardan drive' was a synonym for shaft drive.

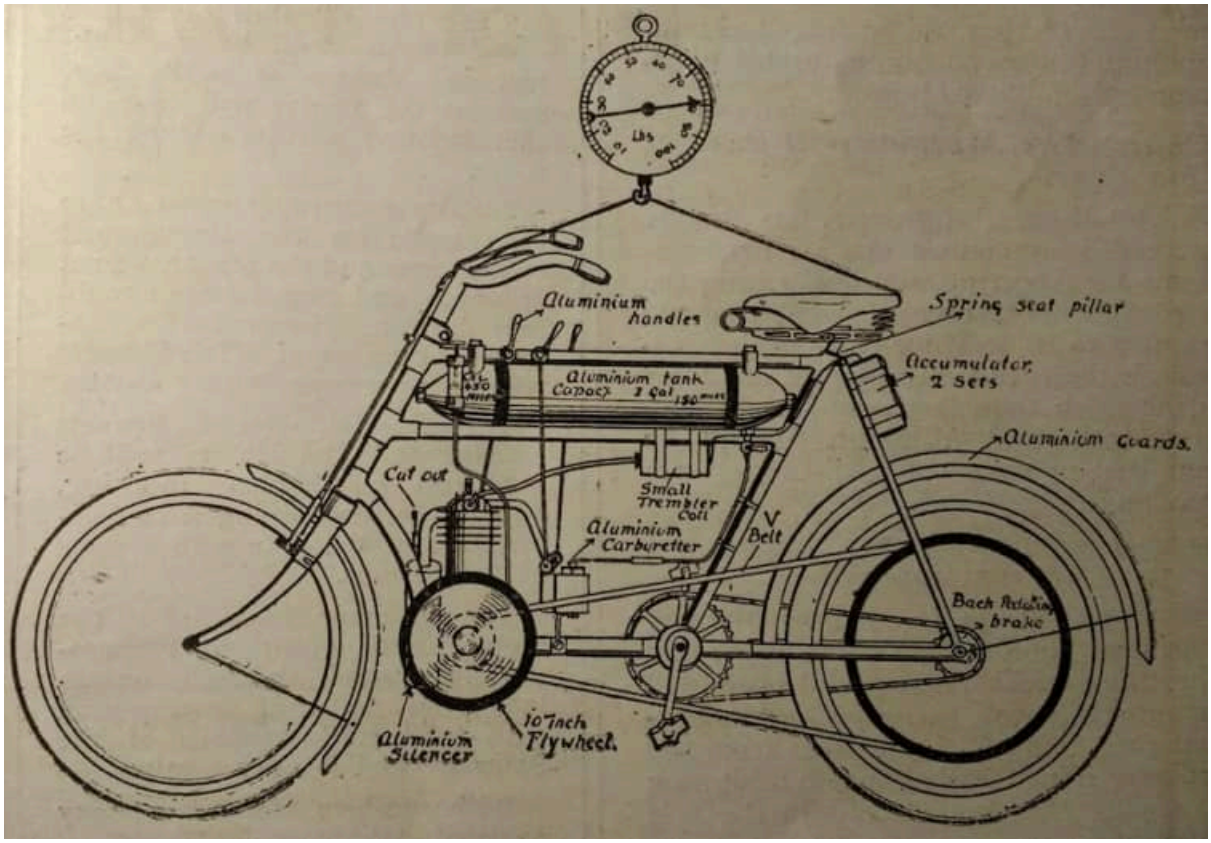




This Cardan could hardly be stripped down any more, presumably to meet the Continental 50kg limit.

THE MOTOR MAGAZINE (INCORPORATING Motor Cycling) commissioned "a special lightweight touring motor-bicycle…to demonstrate that a type of motor-bicycle alternative to existing types is quite practicable…There are a large number of would-be motorcyclists to whom the powerful and necessarily very heavy machine does not appeal…to jump from 26lb to 170lb or so is too big a step…Our ideal has been to have a machine constructed that would have an engine developing a full 2hp and scaling between 70 and 80lb minus petrol and accessories. By suitably proportioning the parts and introducing one or two innovations, chief of which is the employment of the metal aluminium where possible, we have obtained a mount scaling 78 1/2lb, having a solidly constructed frame, equipped with strong tyres, two brakes, two accumulators, wide mudguards and large petrol capacity." The 169cc lump weighed 19lb and developed 2.35hp at 2,500rpm. The cylindrical fuel/oil tank was aluminium and gave a claimed range of 150/450 miles. "This is the □ðrst aluminium tank ever □ðtted to a motor-bicycle." The spray carb and mudguards were also aluminium. The accumulators were said to supply sparks for "easily 550 miles". Brakes (Crabbe Special front, Garrard Moderatum rear) were said to hold the bike on a 1 in 7. "In actual running there is a marked absence of vibration, due to the high-speed engine, large □ðywheel and extra wheelbase. The pace on the level is ample to satisfy even a fastidious tourist…the stiïest climbs on the Brighton Road were surmounted with ease, the

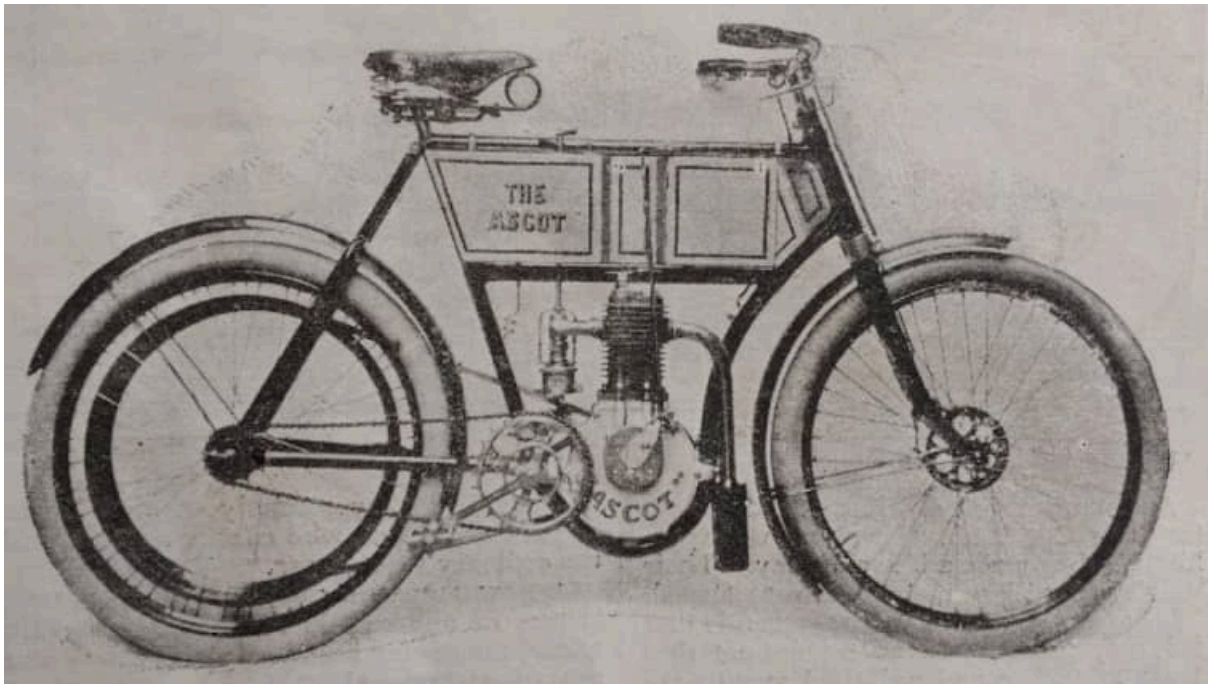
merest touch of the pedals on one or two occasions alone being necessary. Our designs and suggestions have been carefully carried out by the makers, Messrs Garrard, of Birmingham, and we think from the foregoing it is clear that the 80lb touring motor-cycle can be made."



The Torpedo, built to Motor Cycling's design, weighed in at less than 80lb and boasted the □ðrst aluminium fuel tank.

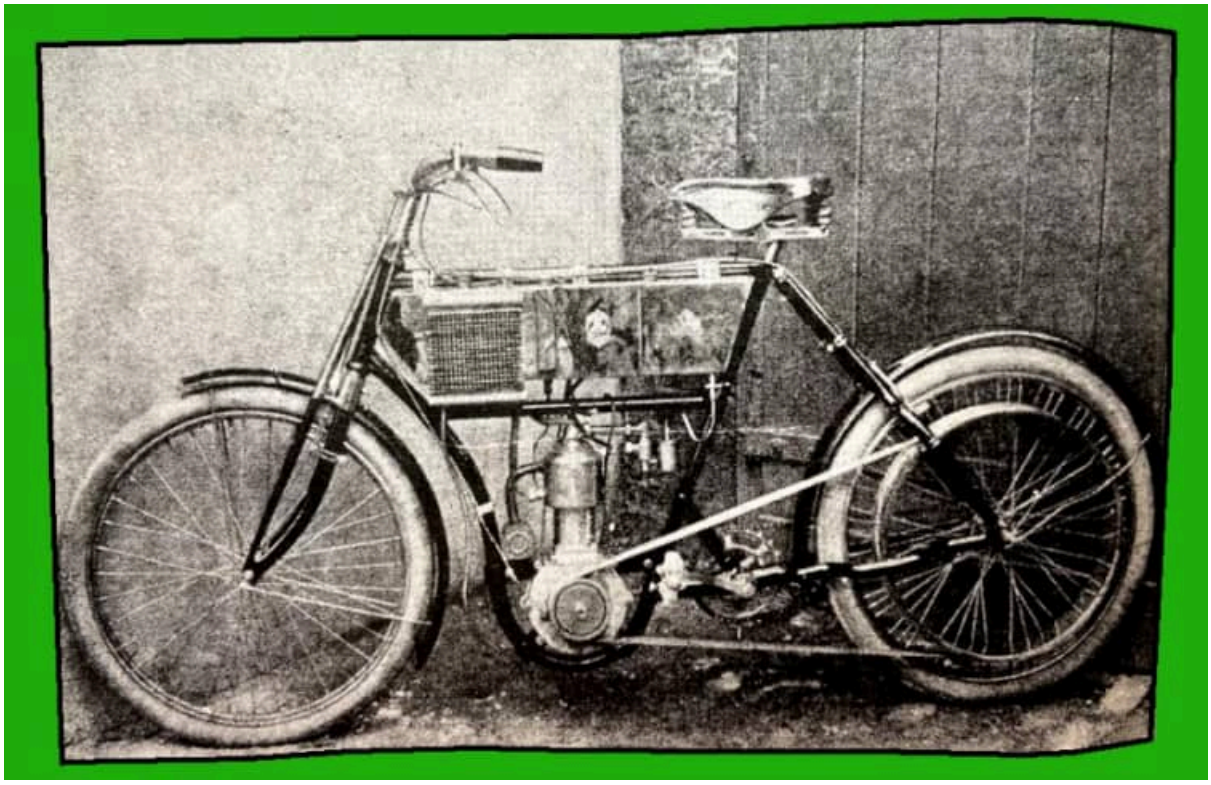
THE AUSTRIAN MOTORCYCLISTS' ASSOCIATION Motorcyclisten-Vereinigung staged a 100km benzine consumption competition between Wiener-Neustadt and Neunkirchen.

M FRANCHINI OF COMO made what was claimed to be the □ðrst two-wheeled ascent of the hill from Varese to Santo Monte "the hill being very steep and rugged".



Ascot, based in North London, went into the motor cycle business in about 1901; this example was among the last made although company founder PercySandham stayed in the industry, among other ventures making the Sandum sidecar. I recommend http://www.go-faster.com/AscotMotorcycle.html. Here you will □ðndtheresultsof an enthusiast's tireless research into the man and the marque. It goesinto exquisite detail; any motor cycle obsessive will read it with relish.

"NEW PATTERNIRISMOTOR-BICYCLE.Thephotographdepicts the latest type Of 3hp Iris machine with water-cooled engine. This is □ðttedwithanew style of outside radiator shown on the side of the tank; there is also a clutch and hand starter provided and the latest petrol tank is of increased capacity. Thecompany are now making these machines with Englishbuilt frames and adding many improvements. Thefront forks are duplex and two rim brakes are □ðtted.The Iris specialities for 1904 will be the single-cylinder and 6hp twin-cylinder, both air and water-cooled. Themakers are the Iris Motor Company, 58, Holland Street, North Brixton, London, SW."

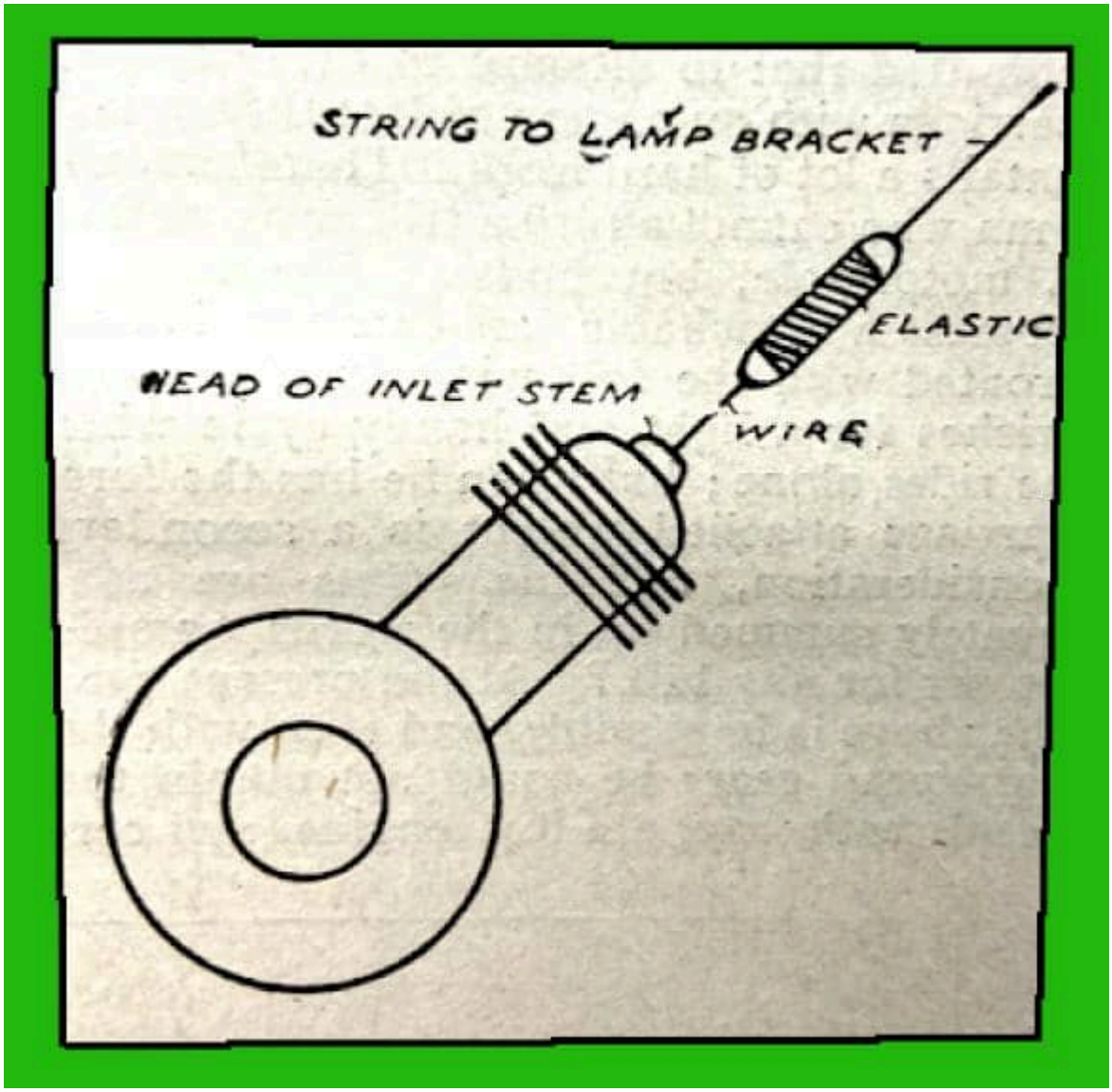


“New Pattern Iris Motor-Bicycle.”

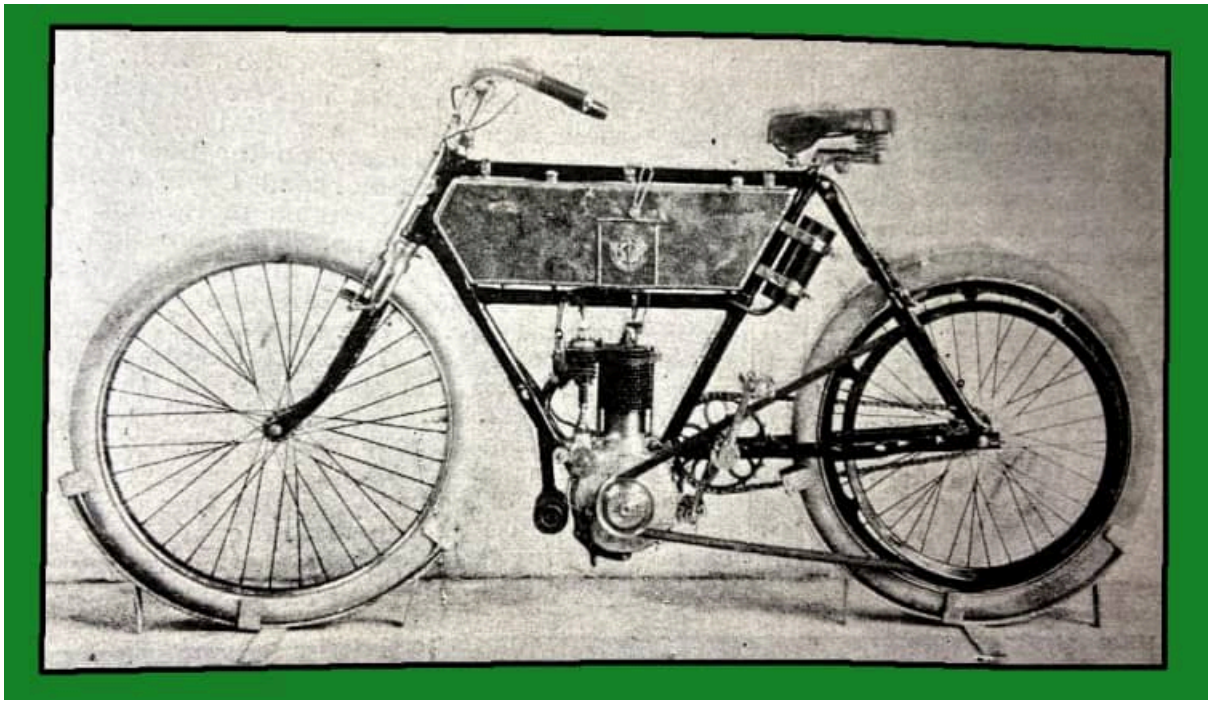
NOTTINGHAMFIREBRIGADEsenttwo engines and two escape ladders to the Campion Cycle Co. “A close inspection of the premises failed to disclose any trace of a □ðre,butlaterit transpired that a member of the □ðrmhadbeentesting a motor-bicycle previous to taking it out for a run, and had over-lubricated the engine. Thesmoke issuing from the shop caused some passer-by to give the alarm.”

THELOCALGOVERNMENTBOARDamendedthe Motor Car Act to allow cars to be reversed “to the extent which is consistent with the safety or convenience of the occupants of the car. Under the amended laws “any horse driver may, by raising his hand, compel a motor driver to stop”. Until this change motor drivers could only be stopped by drivers of “restive” horses.

“SIR,—I HAD THEMISFORTUNEtohave the spring of my inlet valve break on my motor-bicycle. Having no spare spring with me, I thought I was to have some hard work. I found I had about a foot of India rubber tape with me, which I doubled and used as per sketch. This I found answered well and I rode home without trouble. I think the adoption of this tip will carry your readers home if they should be in the same trouble as I was; and many shops sell elastic, but few sell springs.
Chas E Allsopp.”



“THE 1904 WERNERMACHINE.Theillustration will convey a good idea of the lines and detail improvements of the 1904 Werner machine. Theengine has a one-piece head and cylinder; the valve cases are placed well forward, and an air channel is provided between the valve casing and cylinder. Theinlet valve is now mechanically operated. Thefamiliar □ðatbelthasgiven place to a V-belt, and the pulley is provided with an ingenious clutch giving a free engine. This is operated from the handlebar. Thecarburetter is concealed inside a compartment in the tank, and is thus out of the way of dust, and is also kept at a favourable temperature. Thereis a special device □ðttedontheengine to prevent it racing when the clutch is thrown out. Therear belt rim is very securely stayed to the wheel by steel arms. Thecranks can be swung over into line with each other, so that the pedals form comfortable foot rests.”



"The 1904 Werner Motor-Bicycle."

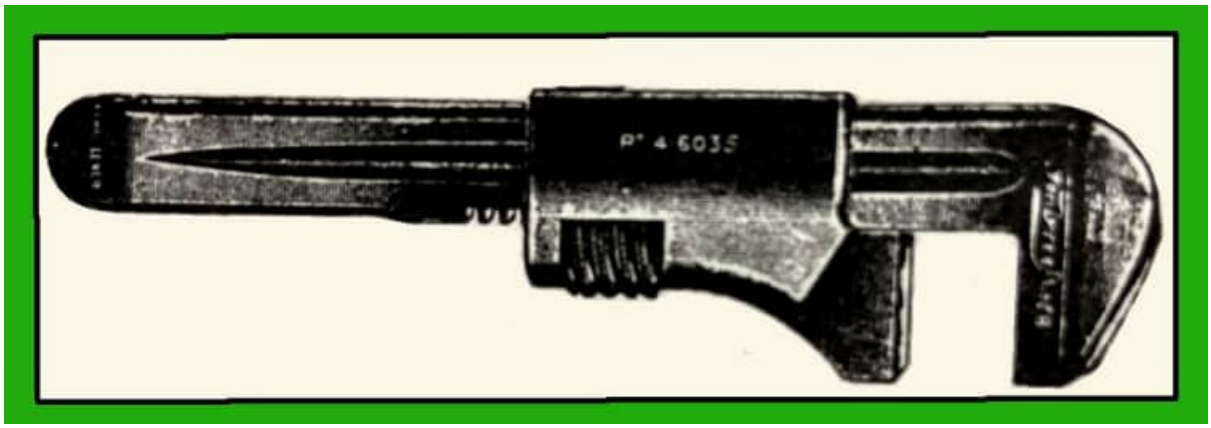
"WERNERVSGAMAGE.Theresult of the action brought by Werner Motors against AW Gamage for infringement of patent and registered design, has created considerable stir amongst the trade. Messrs Gamage were selling Werner motor-bicycles bought direct in France, and by importing and selling them infringed the rights of the English house of Werner; but Mr Justice Byrne's decision to grant an injunction has been based upon the ground of infringement. The design is the well-known one, with the parallel strut running from the down main tube to the seat diagonal, the strut being considerably lower than it used to be, the lower parallel tube running from the bottom of the head of the old double top tube bicycle. The gap between the end of the down main tube and the crank bracket, which is □ðlled by the engine, is also a part of Werner's design, and if Mr Justice Byrne's judgment is held to be a certi□ðcate of validity, it would seem as if any maker who might desire to use this type of frame would have to obtain a license from Messrs Werners."

"MOTOR-CYCLING IN AUSTRIA.A new motorcycle association has been formed in Austria under the name Verband der Motorzweiradfahrer fuer Oesterreich. Like the Motor Cycling Union of the Austrian Motor Club, it is an oīshoot cf the Austrian Touring Club. There are thus two associations at present looking after the motorcycling interest in Austria."

"A NEW TOOL.A clever application of the principle of the ratchet has been made in the Schroeder ratchet spanner, invented and patented by Mr FW Schroeder, 126, Copthall House, EC. Each. spanner is provided with a series of tumblers of various sizes (one is shown □ðtted and one removed) in the illustrations. To tighten up a nut, a tumbler to □ðtit is placed in the jaws of the spanner, the □ðxing plate put into position, and the tool is ready to do its work. Once on the nut it is not necessary to remove the spanner until its work is completed. To unscrew, all that is required is to remove the spanner and replace it with the face, which was previously outwards, inwards. Some of the many merits of the tool are its quick action, its protection of the nuts from injury, and its sureness of grip. Tumblers can be extended to any required length, and by this means nuts in positions diīicult to reach can be easily got at. In an emergency the tool can be used as a ratchet brace for roadside repairs, and in certain circumstances as a □ðxed spanner.It

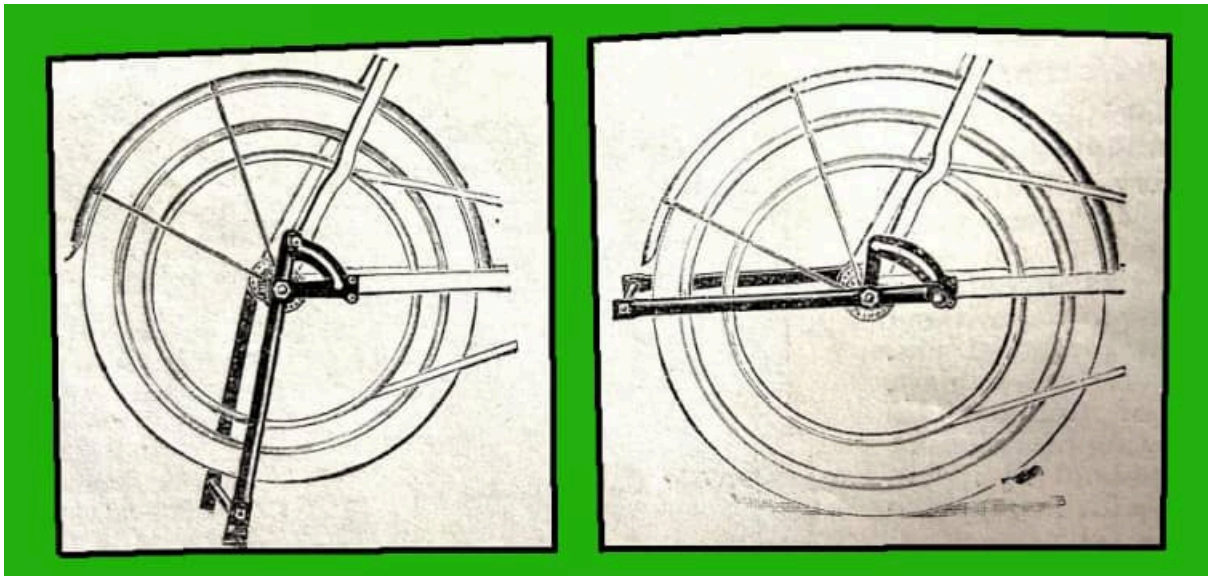
is to be made in all sizes, from that required for a cycle to that for use on a large car; and in one form it will be adapted for use on spoke nipples, to facilitate the building and truing up of wire wheels. The illustration shows an experimental pattern. The article as manufactured for the public will be improved in several ways; the □ðxingplate, forinstance, will be let into the face of the tool so that it lies □ðushwiththesurface and has no projections to get in the way.

“A new Ratchet Spanner.”



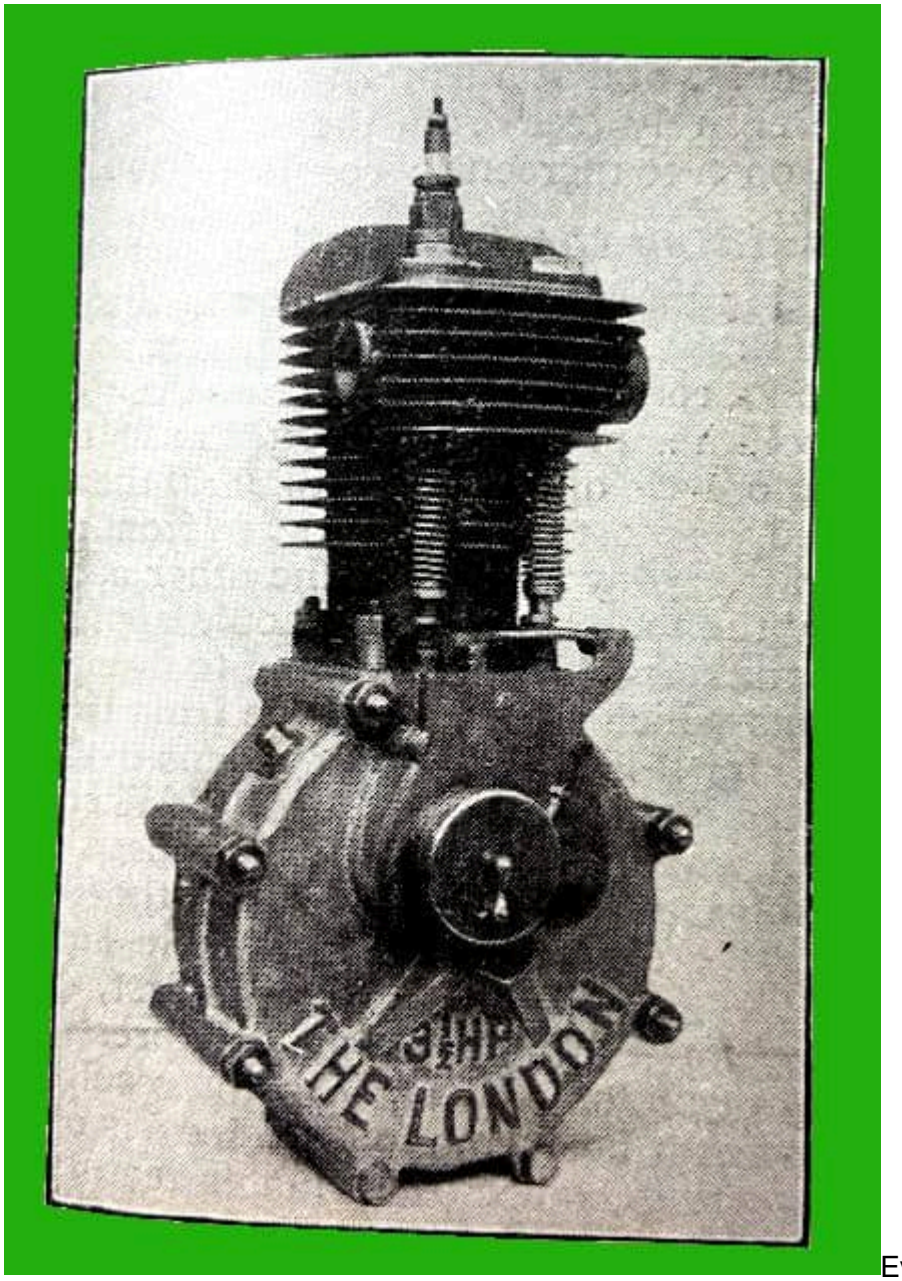
“Spanners suitable in size and strength for motor-bicycles and cars are one of the leading lines of Messrs Seabrook Brothers, Featherstone Street, London, EC. The motor-bicycle pattern is 9in long and the handle forms a useful tyre lever. This spanner can be supplied in black or nickel □ðnish. Thecarsizes are 14 and 18in in length and heavier in proportion.”

“THE‘LIGHTNING’ MOTORSTAND. MessrsLycett, 164a, Deritend, Birmingham, inform us that they have taken up the sole factoring license for the ‘Lightning’ motorcycle stand. The illustrations show the positions of the stand attached to the machine. Thestand is out of the rider’s way when not in use, and can be put into use by simply touching a button and wheeling the machine back, when the machine is lifted from the ground and the stand is locked. This obviates the diīiculty of standing the machine against the wall. Thewhole of the stand is perfectly rigid for the rider to pedal to □ðndhismixture.”



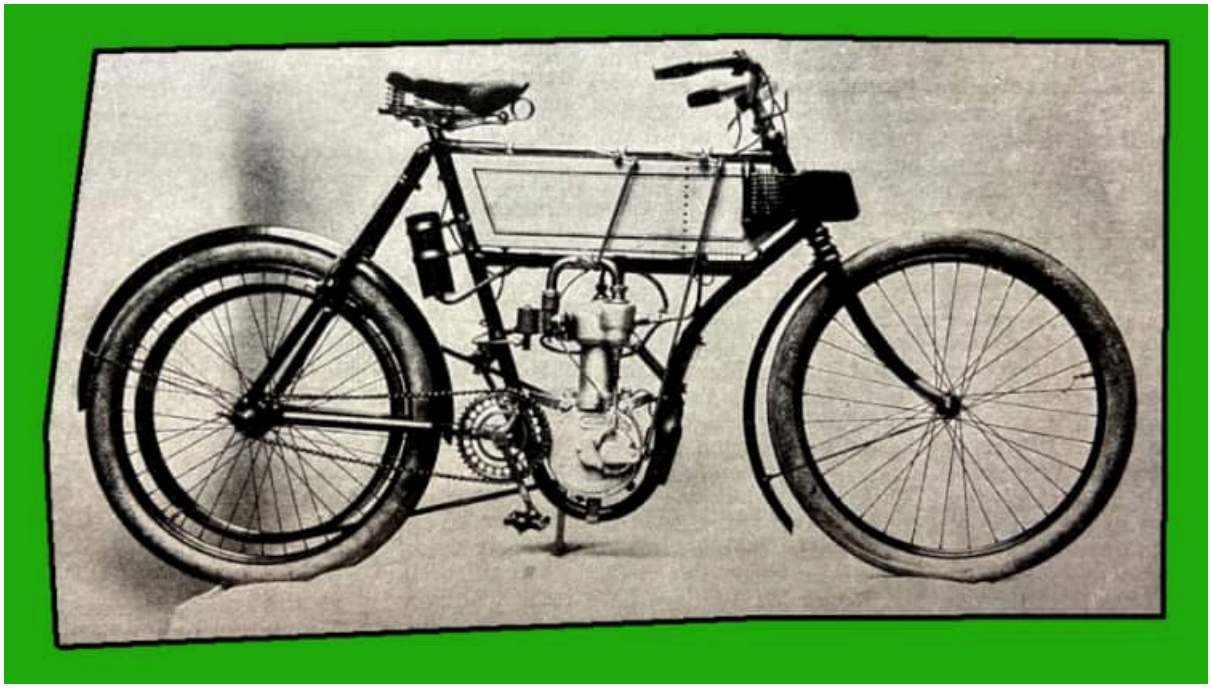
“The ‘Lightning’ Motor Stand.”

“THE REXPATENTSCO,ofthe Exchange, Clapham, are introducing a 3½hp motor called The London. Thename is chosen because it is made throughout in the Metropolis. English threads and measurements are alone used, so that it will be possible to obtain nuts, bolts or similar □ðtmentsatany □ðtter’sshopin town or country. Theinlet valve is mechanically operated and a wipe contact is □ðtted.Thebore is 3¼in and stroke 3¼in (449cc). The sparking plug is □ðttedinthe top of the combustion head and extra large radiators are □ðtted.Anexhaustvalve lifter is included in the design.”

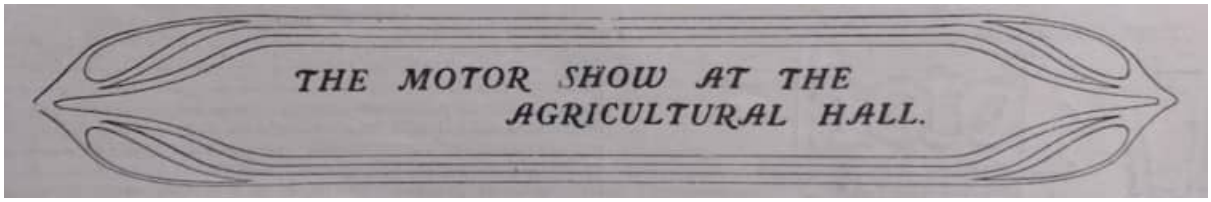


Everybit of the ‘London’ engine was made in London.

“A 2½HP WATER-COOLED motor-bicycle is now being handled by The Farman Automobile Company, 100-104, Long Acre, WC. It is christened the Hopper and the transfer will be the representation of a grasshopper. The engine has a steel cylinder and water jacket and is □ðttedin a shapely loop frame with three detachable clips. The carburetter is an FN, and the contact breaker is of an improved type. The tank stores petrol, accumulator, lubricant and water, the water-containing section being separated by a space to which the outer air has access. Eīicient radiators are □ðttedatthehead. The water tank has capacity for half a gallon, which is suīicient for 100 miles, and the petrol is ample for the same mileage. Front and back rim brakes operated by a single lever on the left handle-bar, are supplied, and the exhaust lift is by Bowden wire from right handlebar. Two ratchet levers on right hand of the top tube operate the advance, sparking and throttle. The drive is by V-belt. The wheels are 26in and the tyres 2in. The total weight when loaded with water and petrol, ready for the road, is 108lb. The stock sizes of frames are 22, 24 and 26in, but any other size of frame can be supplied to order.”

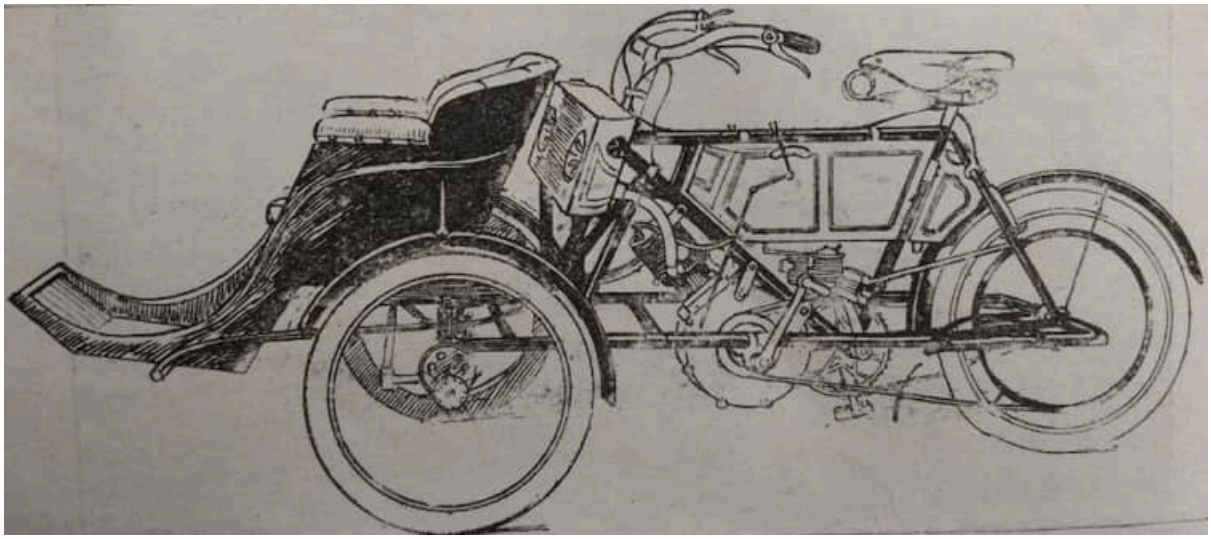


"The Hopper water-cooled motor-bicycle."



Horses out, vehicles in. The Islington Agricultural Hall housed everything from bicycles to luxury cars.

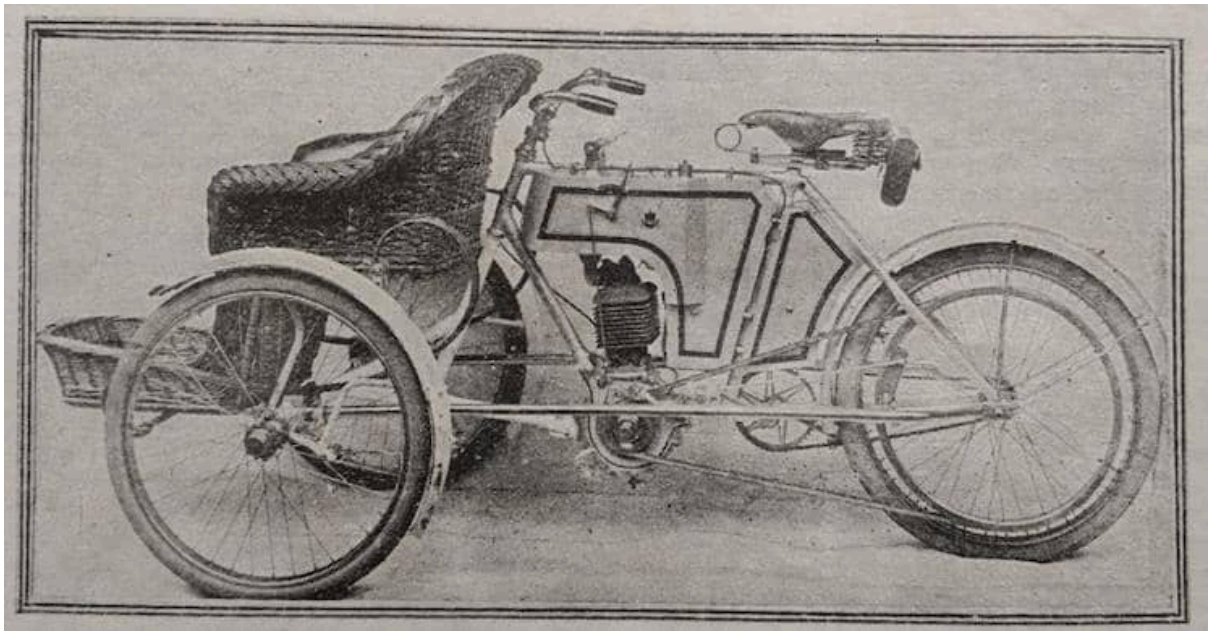
“THE NINTH ANNUAL MOTOR SHOW at the Agricultural Hall, Islington, and the only one which has received the patronage of the Automobile Club, is now open…a horse show which proceeded the show (rather a curious juxtaposition, by the way) was not cleared out until the Tuesday…The place was in an indescribably □ölthy state, reeking of the stable…Those who had left the Hall in chaos on the Friday…were compelled to marvel at the transformation eīected in the night…There is scarcely an inch of room unoccupied in the Hall…The Clarendon motor-bicycles exhibited by The Clarendon Motor Car and Bicycle Co, Ltd, Coventry are of taking design and neatly □ðnished. They are □ðtted with 3hp engines, the cylinder and head being cast in one piece. Mechanically operated valves are a feature, as are the patent pulley bearings. This ball race, which is carried on two projections cast on the left hand side of the crank case, takes the full driving strain of the belt, which actually runs between two bearings. It is claimed that this method prevents any possibility of the □ðywheels running out of line or uneven wear on the bushes. The belt can also be tightened to any pitch without aīecting the running of the motor. The motor is attached to the frame by four bolts, and is supported by a loop tube in a vertical position. The frame, too, is of patent design, the bottom head lug being in one casting, thus greatly strengthening this important part of the machine. A Longuemare carburetter with throttle, a Lithanode accumulator, and a high-speed trembler coil are □ðtted. The wheels have two-inch Clipper motor tyres, although any other make can



Motor Cycling’s artist popped onto the Excelsior stand…

be □ðttedtoorder, A tri-car having a 4½hp water-cooled engine, is also shown. The popularity of the Excelsior motor cycles, made by the old-established □ðrm of Bayliss, Thomas and Co, Ltd, Coventry, is testi□ðed by the large number of these machines which are to be met with on the road. Consequently they require no introduction or recommendation by us. None the less, we advise those of our readers who visit the show to make a close inspection of the latest models. Various detail improvements are noticeable and all bear the high-grade stamp as regards workmanship and □ðnish. The 2½ and 3 ¼hp bicycles, a 3¼hp tricycle (air cooler) and a 3¼hp tri-car (also air-cooled) strike the eye. All are □ðtted with Clincher A Won tyres, duplicate Lithanode non-spillable accumulators, two-way switches, Bassee-Michel high-speed trembler coils, wipe contacts, Lincona belts and spray or surface carburetters. A new addition to the Excelsior group is the 4hp model □ðtted with a carriage built forecar. It possesses the usual features, but the engine is free and water-cooled and is started by a release handle in exactly the same way as an ordinary car. Moreover, two speeds are provided, and

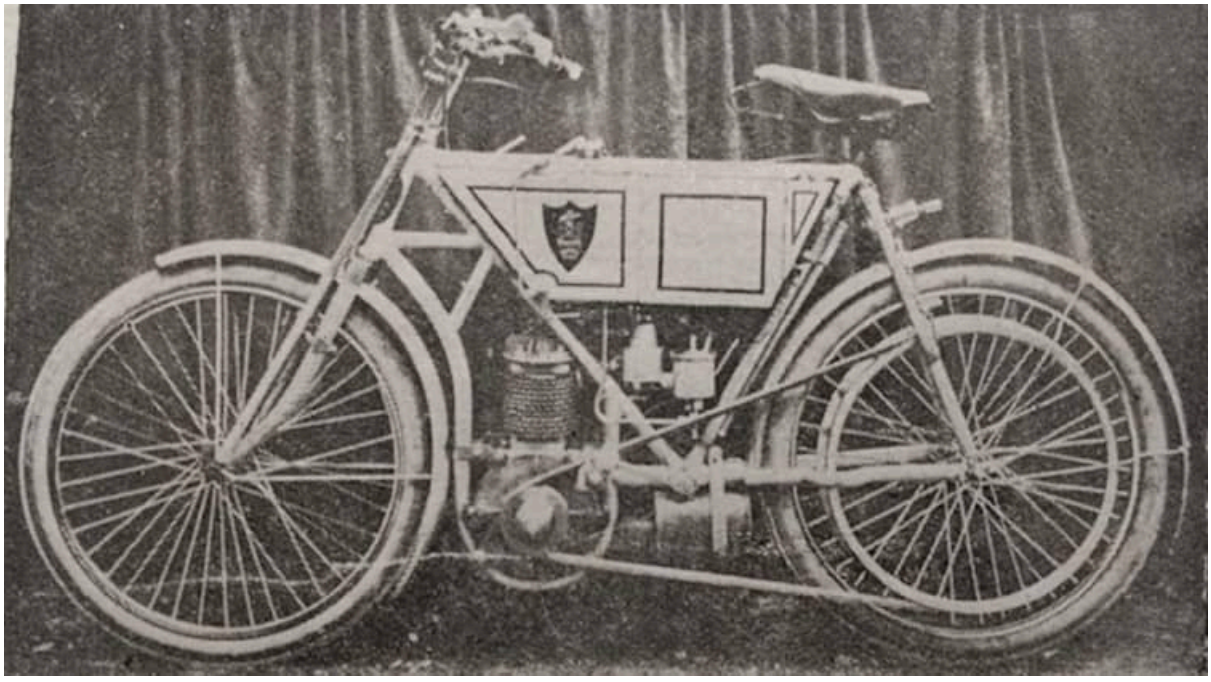
This 3¼hp 373cc IOE Rex: looks as it would have appeared at the show: "…these up-to-date and well-tried mounts are worthy of the attention of visitors who are thinking of taking up the fascinating pastime of motorcycling."



Rex's latest Tri-ette sported a 3¼hp engine and wicker-work seat.

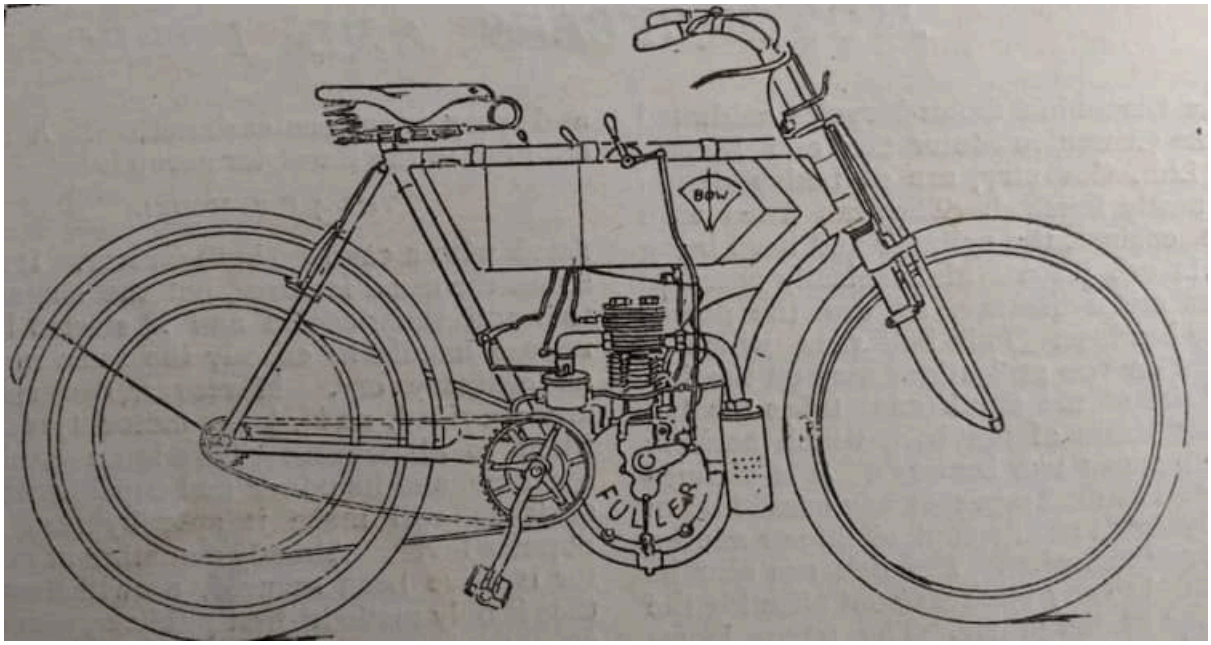
2½in motor tyres are □ðttedtoall wheels. This is an excellent machine, and its power and capabilities are such as will make it speedily leap into popular favour. Already a number of orders for it have been secured, notwithstanding that it only made its □ðrstpublicappearance on Saturday. As is the wont of the Rex Motor Manufacturing Co, Ltd, Coventry, when exhibiting they make a brave display. Their well-known 3¼hp motorcycles are staged. We have referred to them so frequently that it is only necessary for us to point out that these up-to-date and well-tried

mounts are worthy of the attention of visitors who are thinking of taking up the fascinating pastime of motorcycling. The Rexette possesses two coach built bucket seats, one being attached in the form of a fore car and the other at the back—that is to say, it supersedes the saddle. A water-cooled engine of 4hp drives the carette (as it may be aptly described), and this is rigidly □ðxed to a registered design of cradle, which permits of its being easily removed when necessary. The vehicle is pedalless and is started by a □ðxed handle after the practice of ordinary cars. The engine power is transmitted by a chain (protected against dirt and mud) through a clutch to the rear wheel. The tubular framework is very strong; indeed, the Rexette is a serviceable and attractive vehicle, which at 90 guineas is appealing very strongly to that large class of individuals who cannot yet aīord the ordinary type of car. A new addition to the Rex models is the Tri-ette. This takes the form of a tri-car, the engine being of 3¼hp and the seat of wicker work. The Begbie Manufacturing Co, 407, Oxford Street, London W, exhibit a Pearson motor-bicycle, The main feature of this machine is that it is □ðtted with the excellent



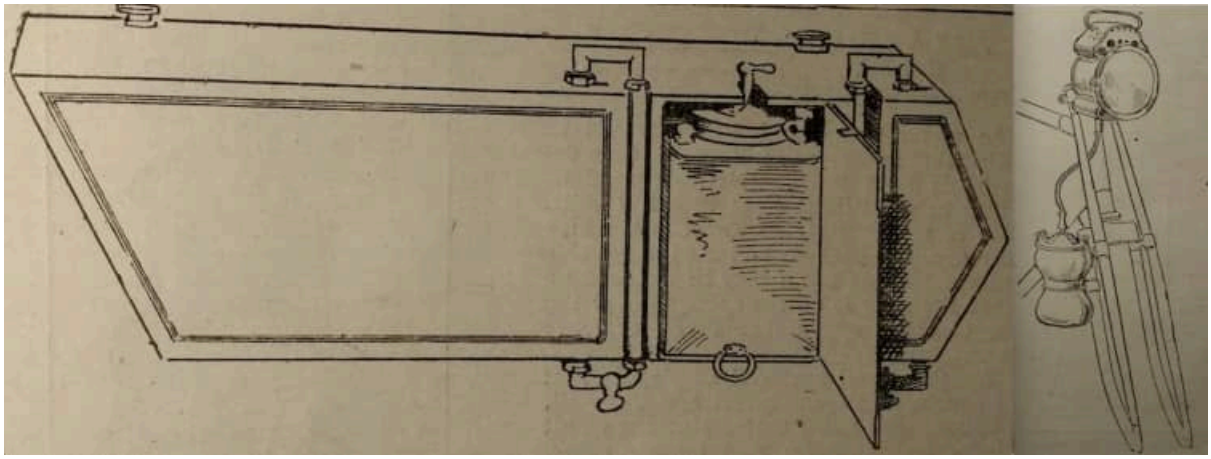
The Pearson was powered by a 4hp Aster engine.

Aster engine. This has ribbed copper radiators and develops 4hp. A special design of frame is adopted on this machine, the engine being mounted vertically in a loop running from the lower part of the head tube. It is braced at this point to the main down by two short tubes, forming a double triangle behind the head, thus giving an immensely strong structure. The carburetter is a □ðoat feed spray with throttle and air control. The ignition is high tension electric by coil and accumulators, and transmission is by a long V-section belt. It will be noticed from the illustration that the engine is very rigidly held in the loop tube, and the triangle of tubes just in front of the bottom bracket makes this vital part extra rigid. Duplex forks and a large silencer are □ðtted. Two machines shown by the Aurora Motor Manufacturing Co, Coventry, must be noted, a 2½hp motor-bicycle and a 3½hp tri-car. The former is built on standard lines, and does not call for any special description—although we may say it is excellent value for £38—and the latter is provided with a free engine clutch and a mechanically operated inlet valve. The Fuller motor-bicycle is made in 2, 2¾, and 3½hp sizes. It is a handsome mount, with vertical engine, mechanical valves, and Bowden valve lifter □ðtted. The motor is □ðtted in a loop



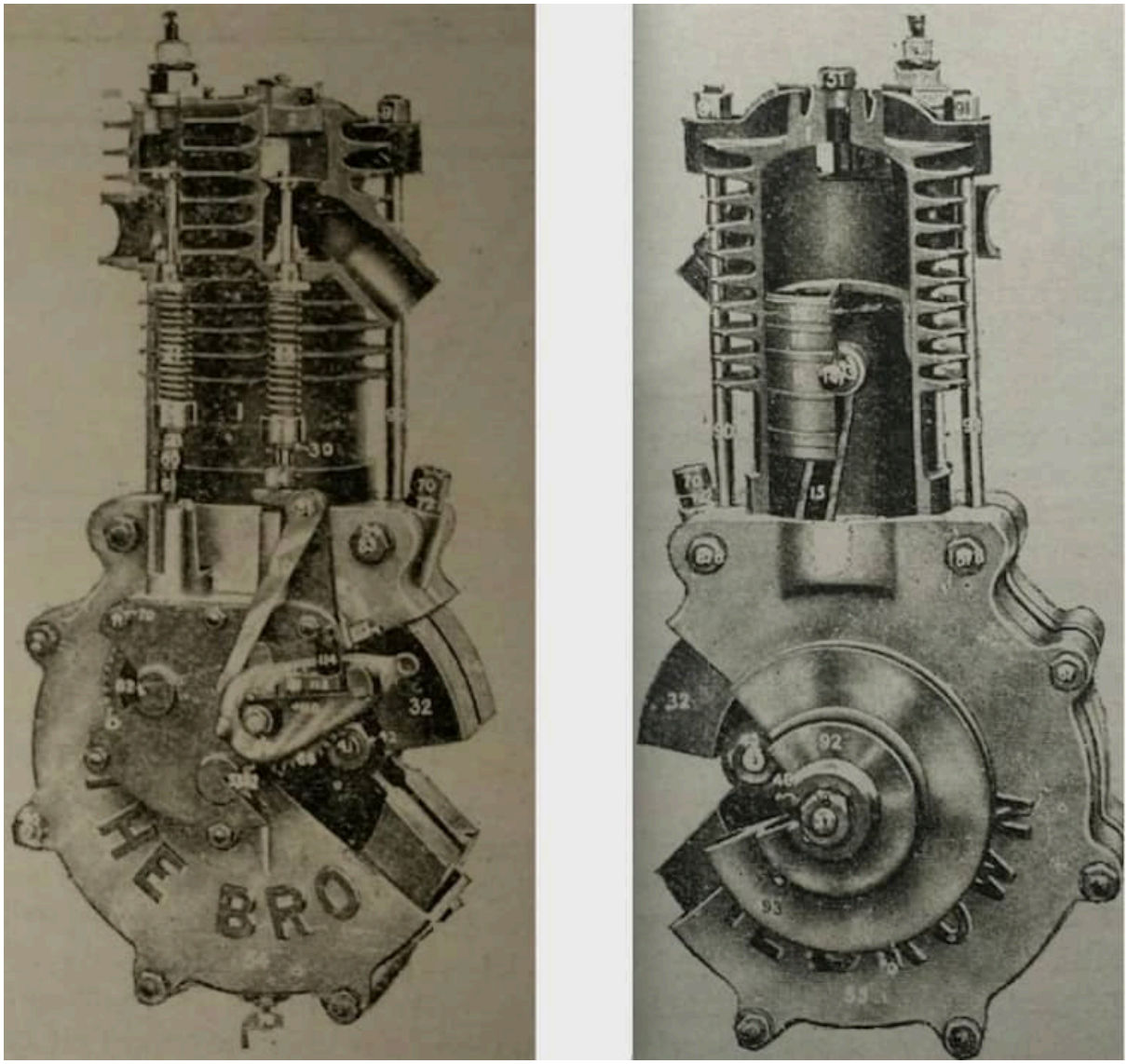
The Fuller, one of many short-lived marques assembled from proprietary parts.

frame, having duplex front forks. The carburetter is of the Longuemare type, with automatic air regulator. The ignition is by a Fuller trembler coil and Fuller dry battery or accumulator. The tyres can be Clipper, Dunlop, Palmer or Continental make at option. The drive is by V-belt. There are two brakes, the rear one being a Bowden rim pattern. The engine is a very excellent one, and securely clamped in the frame, and the regulating levers have ratchet adjustments. The price is 40 guineas. The □ðrm call the machine the Bow motor-bicycle. The Garrard Manufacturing Company, Magneto Works, Birmingham, exhibit their latest production in the shape of a 5hp tri-car, having numerous good features. We have quite recently described and illustrated this handsome little vehicle, so a further description will not be necessary. We can recommend a close inspection, as an eīort has been made to eliminate the several disadvantages of the usual type of light three-wheeler. The □ðnish and symmetrical lines especially will be noted. In addition to the tri-car will be found a new two-speed motor-bicycle gear shown □ðtted in the □ðywheel of a 2hp Clement Garrard motor. It is of the internal pinion type and is certainly a device from which much may be expected. Motorcyclists will be interested to learn that AW Gamage, Ltd, Holborn, have introduced a new pattern 3hp motor-bicycle, □ðtted with Fafnir engine on a Chater Lea frame. It has the FN carburetter and coil and accumulator ignition. The drive is by V-belt, and there are two brakes, and the mudguards are wide and well extended. The control levers have ratchet adjustments, and the petrol capacity is extra large. The front forks are duplex, and the tyres are special Dunlops. At £35 this machine is really splendid valve, and a mount to suit the most critical rider. It has excellent hill-climbing powers, and the general □ðnish is equal to anything we have seen. Another □ðne mount exhibited has a 2¾hp vertical engine built into the frame. It has V-belt transmission and a Longuemare carburetter. High-tension ignition is used and two sets of batteries are provided, including a two-way switch. The front forks are duplex, and there are two brakes and an exhaust valve lifter. This mount is £47, inclusive of all accessories. W Maitland Edwards, at Stand 241, is showing his improved non-skidder, which consists of a specially prepared toughened chrome leather cover, moulded so as to □ðt all sizes and makes of tyres. On the tread of the cover steel segments are □ðxed, with bifurcated rivets at suitable intervals. The Palmer Tyre, Ltd, Birmingham, have, as usual, a very attractive display. The nature of the exhibits does not vary from those recently shown at the Crystal Palace. Their famous cord motor tyres of the □ðange-□ðxing and beaded-edge tyres are to be seen,



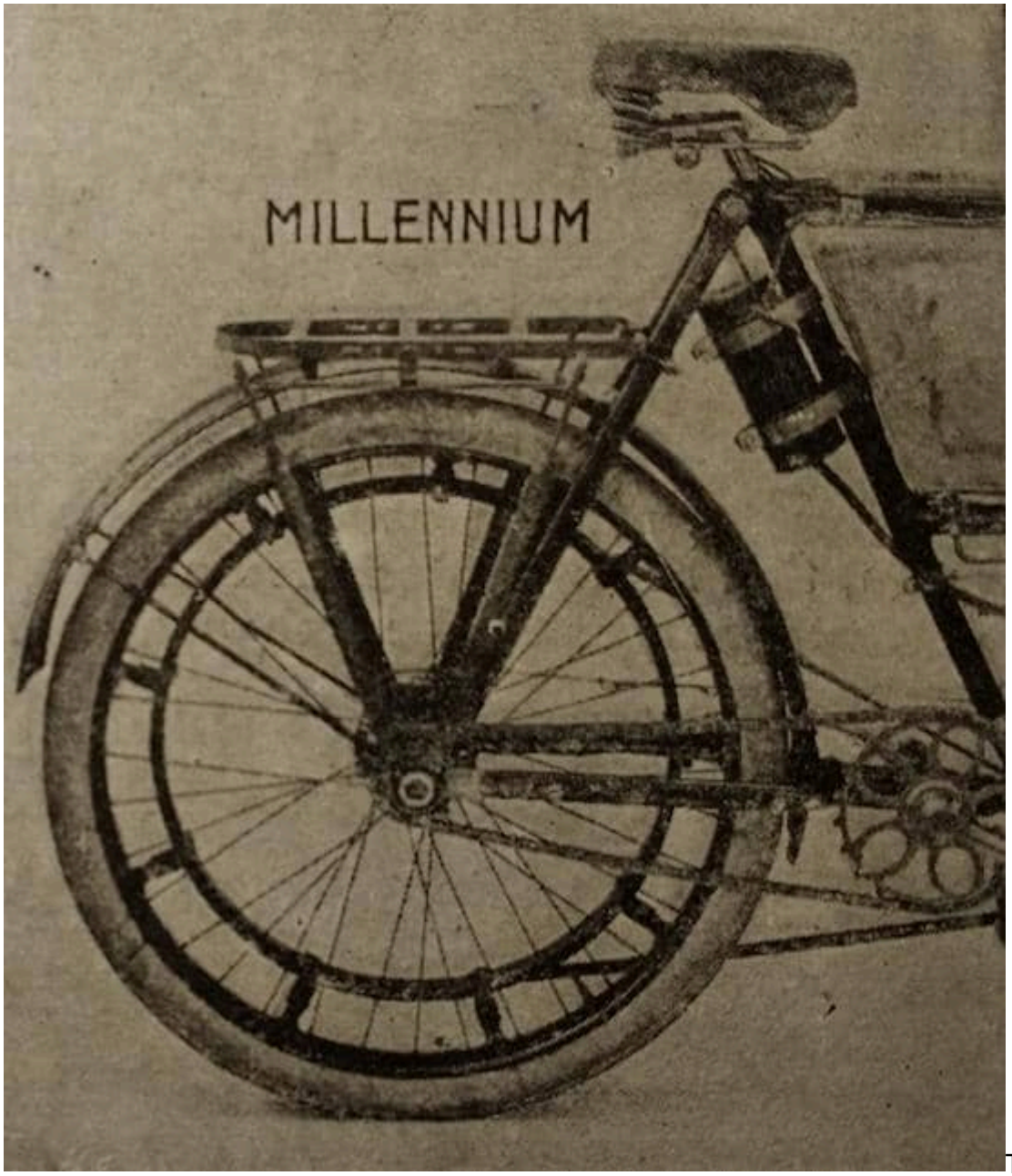
Bartletts displayed a wide range of accessories at the Agricultural Hall.

and various sizes of motorcycle tyres are also displayed viz. 2in, 2¼in. and 2½in. The last is now made of the cord fabric, and should appeal very strongly to motorcyclists who are seeking a high-class and ingeniously constructed tyre, embodying in a very marked degree speed with durability. The Fisk detachable tyre, shown by the South British Trading Co, is an American tyre of sound construction and □ðnequality material. Its novel point is its principle of attachment to the rim. It is clamped on by steel rims and drawn bolts, and is most securely □ðxed, and yet very readily dismounted for repair. Fisk single-tube tyres are another special line. They are secured to the rim by bolts. Numerous accessories are shown, including a set of the Fuller batteries, etc. Other details are steering wheels, jacks, pumps, tyre repair out□ðts, cycle belting, tool out□ðts, etc. The 'Arclight' lamp stands out prominently among the exhibits of H Miller and Co, Ltd, Miller. This is an acetylene lamp having a burning capacity of six hours. The Miller Tail Lamp is so constructed that it can be used for inspecting the engine. It has a red glass and a white glass, and the red glass can be folded back. It burns paraīin…The Anglo American Oil Co, 22 Billiter Street, London, EC, makes a bold bid with Pratt's motor spirit which is so extensively used throughout the kingdom. Mr AA Godin, of 9, Littyle James Street, Gray's Inn Road, WC, is showing a pump which will appeal very strongly to those who are tired of the old back-aching method of in□ðating tyres. It is put into gear with the engine, the amount of air which is pumped into the tyre at each piston stroke being the same as that pumped by an ordinary foot in□ðator. The indiarubber valve connection has a gauge □ðxed to it, in order to show the pressure of the tyre. This gauge is provided with a two-way tap, which, during the in□ðation, communicates with a safety valve □ðtted with a whistle. When the required pressure is obtained the whistle sounds, and it is then only



Therewas a lot of interest in a sectioned Brown engine.

necessary to turn the tap into its second position when the surplus air will □ðnditswayout. Messrs JBartlett and Co, of South Tottenham, London, N, have entered the list of manufacturers of lamps…Themotorcycle lamp is made with a separate generator, to be clipped on the front forks…Anothernovel feature is the gasgenerator, carried in a compartment of the tank [which] is well made, with petrol and oil gauges □ðtted…MessrsLakeandElliott, of Braintree is displaying a carrier-stand, which is quickly brought into operation without the necessity of undoing any screws…It is very strongly made, and when in use as a stand has a wide base of 10½in, which gives it great stability, and allows motor-bicycles to be run on it for test purposes with security. When folded up (which is quickly and readily done) it supports the carrier,



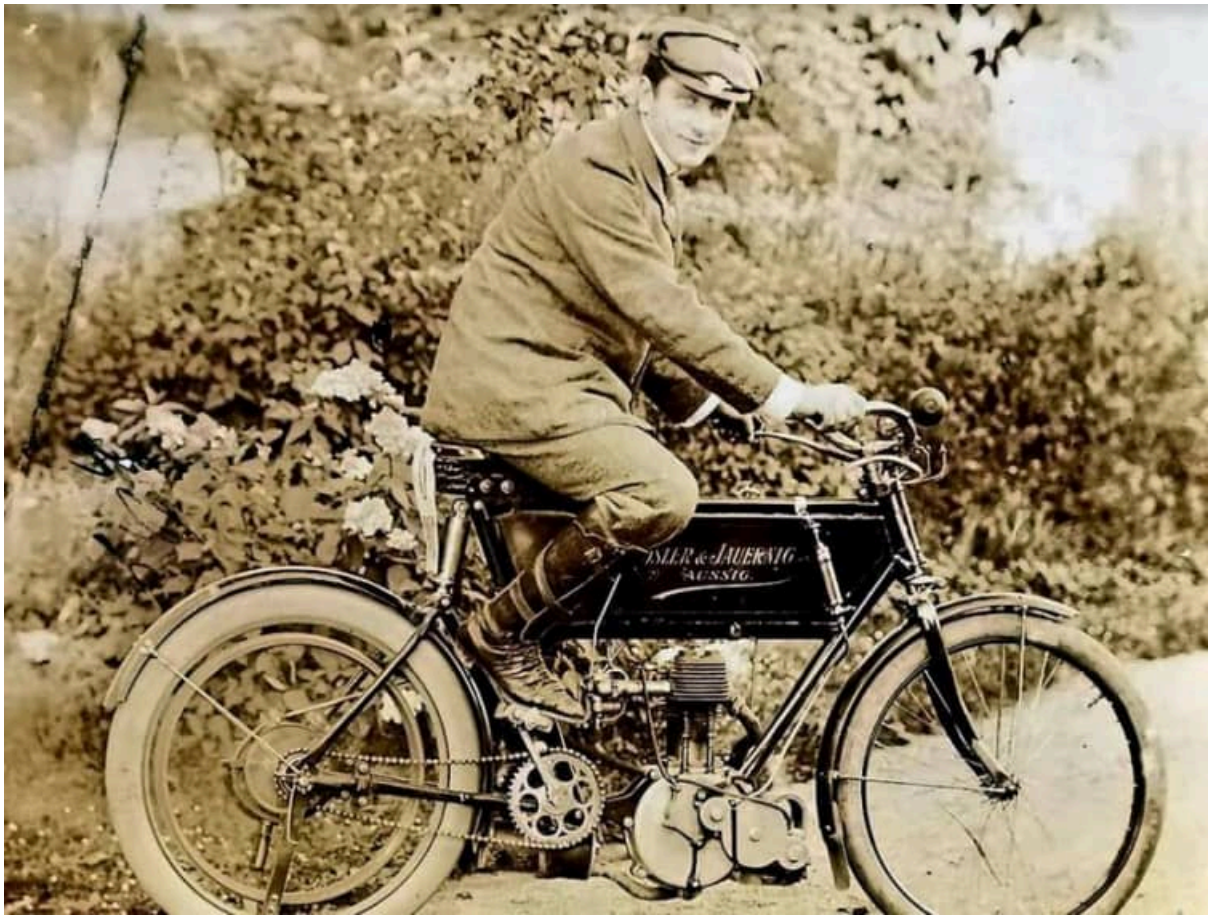
The Lake Millennium carrier doubled as a stand.

and closes up to 6½in, leaving no awkward projections to catch the rider's leg when dismounting. A great point about it is that the luggage of the carrier in no way interferes with the use of the stand. Alfred Dunhill, Ltd, of Euston Road, London NW, have a most complete and varied assortment of their numerous specialities: jackets of various patterns, waistcoats, chrome-dressed calf skin clothing, gloves, gauntlets, overcoats, dust coats, aprons, furs, waterproofs, overalls, caps, leather over boots and foot muīs, gaiters, etc all tempt the eye…in addition, headlights, test lamps, pumps, speed indicators, number plates, altitude recorders, side baskets, goggles, motor horns, in fact, as the □ðrmaptlyputsit, 'everything' but the motor can be obtained here. Wass and Cocks, Ealing, show the Gripwell brake. This consists of a lever working in a clip which is attached to the compression stay of the motorcycle. One end carries a shoe which engages with the belt pulley, the other carries a pawl which comes into action by back pedalling. The power of the brake can be graduated to a nicety. It has few parts and is

altogether highly eīective." A selection of the ads that accompanied the show report may be found in the ad section at the end of this page.

RÖSLER & JAUERNIG
Fahrrad-u. Motorfahrzeug-Fabrik Aussig a. Elbe
Vertreter für Wien
Karl Schug Wien, VI., Amerlingstrasse 8
Styria Fahrradwerke Wien, I., Karntnerring 15.
EXCELSIOR

This image, of course, is from a Continental show. Rösler & Jauernigoperated in the Austro-Hungarian Empire (more speci□ðcallyinwhat is now the Czech Republic) from 1903-07. Why don't we get palm trees at bike shows any more?



This Rösler & Jauernighails from what is now the Czech Republic but was then part of the Austro-Hungarian Empire. It was in production from 1903-7.

Durkopp had been in business for three years when this beauty was produced, by which time its range extended to a V-twin and an in-line four.

Henri Cissac at Dourdan with the 12hp Peugeot. The 1,489cc 45° V-twin engine weighed 27kg and, to comply with racing rules, the whole bike weighed just 50kg, leaving no margin for brakes.

Rather more sedate, this 4½hp roadster is a well restored survivor.

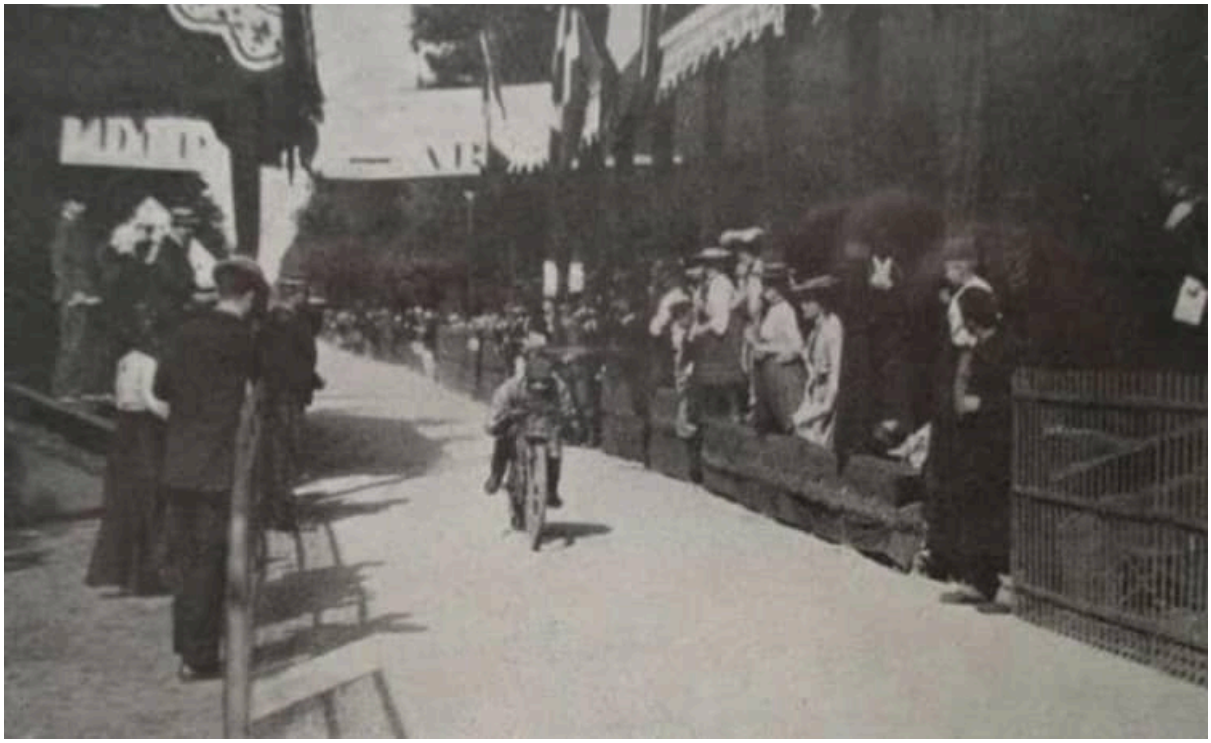
THECONCOURSD'ENDURANCEpourMotorcyclettes de Tourisme was hosted by the Autocycle Club de France. It was open to motorcycles weighing up to 50kg over □ðvelapsofa 54km course starting and ending at St Arnoult, via Dourdan, Etampes, Authan and Ablis. Entries limited to three per country; Britain was represented by a JAP, a Lagonda and a Quadrant. They took on three Griīons from Franceridden by Messrs Demester, Inghilbert and Lamberjack; three Progressesfrom Germany, two Laurin-Klements from Austria-Hungary and a Humber-based Jurgensenfrom Denmark ridden by a chap named Petersen. Nails scattered on the course created havoc and some louts threw stones at the competitors. TheFrench took top three spots and one of those fragile 110-pounders achieved 76.5mph. But when the Brits protested about the nails and other irregularities the race was declared null and void. Someone had to bring some order to international motor cycle racing so the sports authorities of the □ðvecountriesput their heads together. At the end of the year delegates from the French MCF, British ACC, German DMV, Austrian MVÖand Danish DMCC met at the restaurant Ledoyen in Paris and established the Fédération Internationale des Clubs Motocyclistes (FICM).Once the dust had settled The Motor Cycle had its say: "The most important motor bicycle event of the whole year, in which the honour of nations was at stake, is over. England made a plucky □ðghtforitand lost, and, with that doggednessinnate in every man born under the Union Jack, British manufacturers must enter again and again until the cup is carried. As regards speed, the race was intensely exciting, and, as is too often the case on these occasions, turned into a trial, not so much of general reliability as of tyres. Thenails that were found on the road were stated to be strewn from one side of the road to the middle, leaving the other side quite clear, thereby proving that this dastardly and unsportsmanlike act was carried out with the intention of rendering certain machines hors de combat while others might avoid them. The

L-R:“Inghilbert takes a refresher at one of the controls during the International Cup Race. Loading one of the disabled machines into a cart. Tolksdorf, who rode a German Motor Bicycle.”

Frenchmen had a complete system whereby their representatives could obtain spares, as racing motor bicycles laden with these necessaries toured the course in the opposite direction to the competitors, whom, of course, they met at frequent intervals. Previous to the race Demester’s machine was weighed and found to scale 49.75kg. It was then given a thorough clean down with petrol, was weighed again, and again found to be too heavy. Its high-tension wire was then shortened, and having received other small attentions it was weighed again, and this time declared to he within weight by the acting commissioner, and though it was said a verbal protest was about to be lodged the matter was allowed to drop. Then came another surprise. The subcommittee, instead of referring to the International Commission, informed the press that the rare was annulled. The French daily automobile press then made an outcry against this, saying that when nails had been found on the Paris-Bordeaux and the Circuit des Ardennes courses neither of these races had been cancelled. This produced another startling revelation, for a member of the sub-committee wrote a letter to Le Velo, saying that, were the reasons actuating them known their conduct would be universally approved. What the reasons were is a secret, but it is clearly evident that it was not the presence of the nails. Then the International Commission, amongst other business, declared their decision □ðnal, which was, of course, obvious from the Gordon. Bennett rules,

“Boys picking up the nails strewn on the course at the International Motor Cycle Cup Race.”

which the Commission vigorously followed as far as they were applicable to motor bicycles. As may be imagined, therefore, the meeting was a stormy one, and lasted over four hours. At the banquet given to the competitors and oīicials, M Bardin, president of the MCF, made a pleasant speech, which was heartily received. Mr O’Gorman, delegate of the Auto Cycle Club, in proposing the health of the president, pointed out that no doubt everyone thought that the English competitors and he were depressed at the results of the race; if that were the case they were much mistaken, as they were determined to try and lift the cup another year. Other speeches were then made by various journalists, a vast staī of whom were present; and it eventually fell to Mr O’Gorman to propose the health of the winner. Messrs Priest, of the Quadrant Co., Prestwich, and Wilbur Gunn, were present. There is no doubt that but for the hard work done by the Auto Cycle Club, England would never have been represented. Of the manner in which it gave the competitors every assistance, and its promptness in carrying out all the arrangements in record time, we cannot speak too highly; while the competing ðrms are to be heartily congratulated on their enter prise. But most of all, every British motor cyclist must be thankful to Mr M O’Gorman, of the ACC, on whose shoulders the brunt of the arrangements fell.”



The □ðnalsectionofthe course looks □ðne,butouton the road it was a diīerent story.

LA VIE AU GRAND AIR
ABONNEMENTS
15 Septembre 1904 — N° 314
Pierre Lafitte et C^ie, 9, avenue de l'Opéra, Paris (1^er)
PUBLICITÉ
LA COUPE INTERNATIONALE DES MOTOCYCLETTES. — L'ARRIVÉE DU GAGNANT DES ÉLIMINATOIRES
“The arrival of the qualifying rounds”—Lamberjack on his Griīon.

IXION SUMMED UP the event in his glorious Reminiscences of Motor Cycling*: “The Motor-Cycle Club of France oīered a valuable cup for an international race at eight weeks’ notice. France would have won in any case, but so brief an interval gave us no chance to prepare. A course of 168 miles in □ðvelaps near Dourdan was selected, and the French club held eliminating trials on September 11 over the actual course. Thirteen riders contested the three places, which were all secured by Griīon machines, the winner averaging 46.5mph—a □ðne feat for those days. We selected Hodgkinson on a JAP, Rignold on a Lagonda, and Silver on a Quadrant, and all three □ðrms found it very diīicult to get down to the stipulated weight of 108.5lb. France, Austria, Great Britain, Denmark and Germany were represented in the race on September 26, though only 11 men started. Of our team Rignold was the only man with racing experience, and he was a track rather than a road man. None of the three threatened danger. Demester on a Griīon won

comfortably in slow time, but Vondrick on an Austrian Laurin-Klement gavethe Frenchmena rare fright."

* You'll □ðndtheentirebook at the end of 'Tales from the Motor Cycle' in the main menu: it is impossible to over-praise it.—Ed

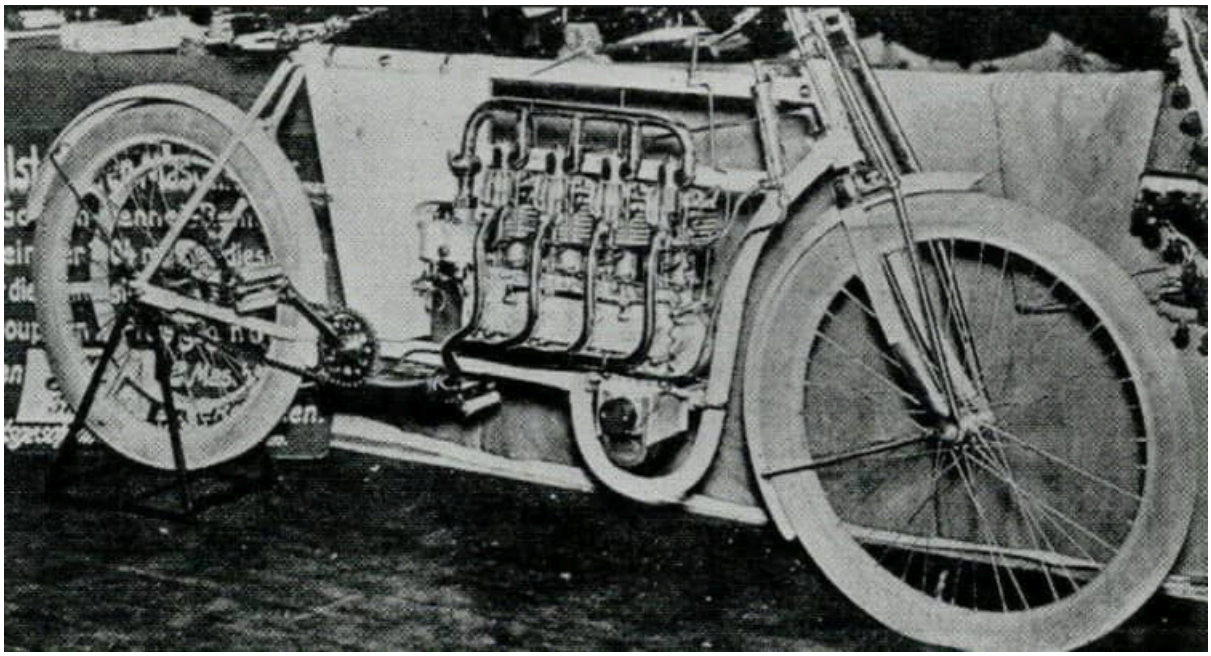
Griīon Ace Demester takes a sharp right during the Coupe International; he had an easywin.

A rider named Kuhling won the lightweight class of the Circuit d'Ardennes on a Minerva…

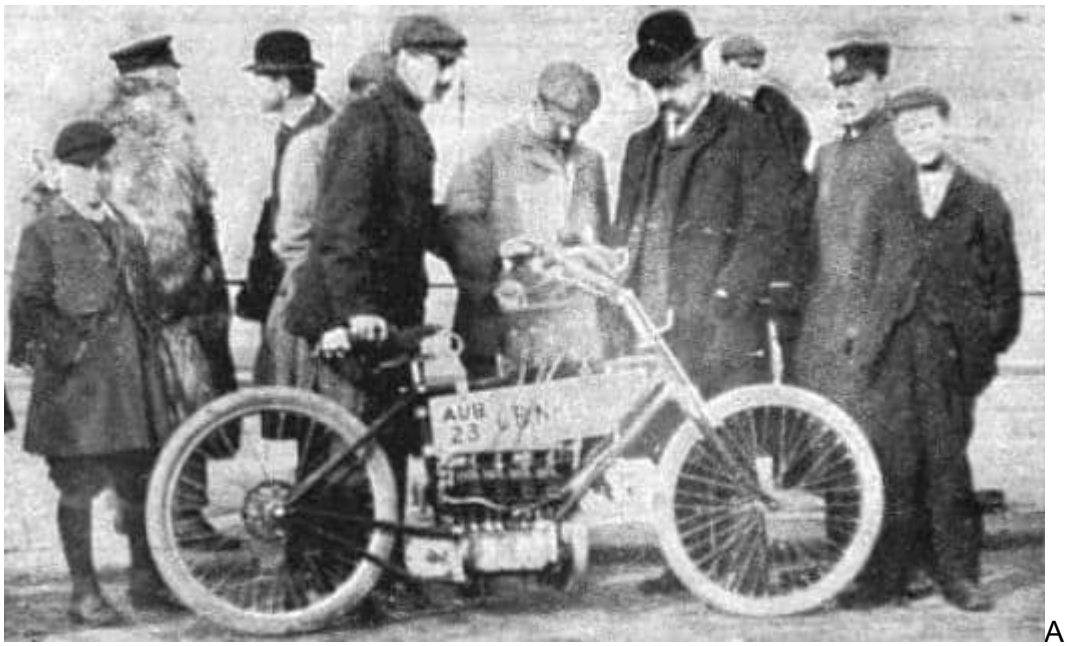
…and here's the Minerva team.

This snap of a 1904 Laurin-Klement is taken from an early chase movie. So while the bikes that raced for Austria-Hungary in the Coupe Internationale would have looked like this, it's a fair bet that

the riders didn't wear boaters. L&Kalso built an in-line four, but soon dropped bikes in favour of cars.

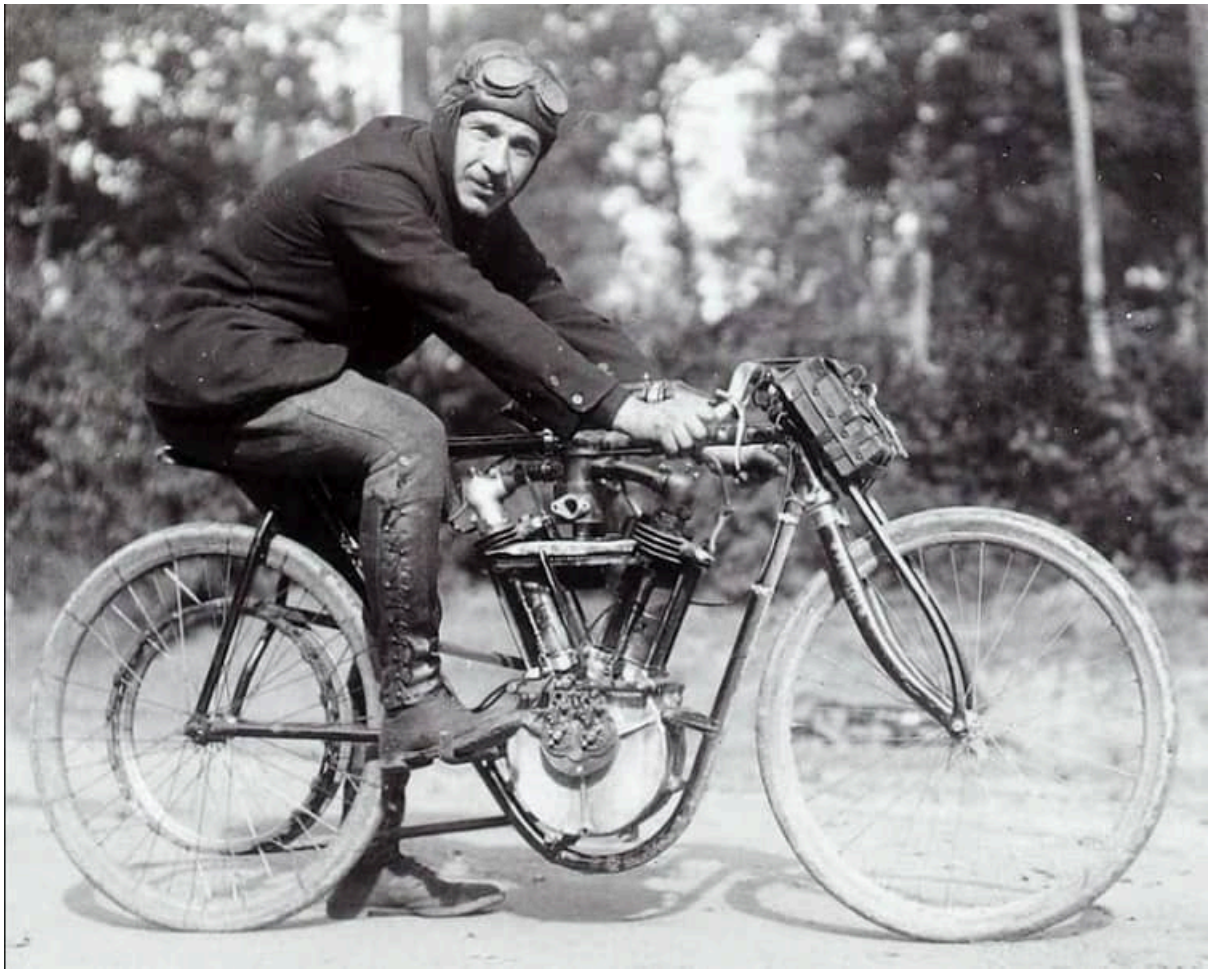


It's a shame that Laurin & Klement's purposeful four had to leave the party early.



A four-pot Binks competed in the Blackpool speed trials without notable success; Charles Binks turned his attention to carburettors.

The FICM was set up to regulate international motor cycle sport.



Vincenzo Lanfranchi won the motocyclette class at La Course de Cote de Gaillon hillclimb, also on a potent 12hp Peugeottwin.

…and here he is again, having won the Coupe Hydra and setting a 100km 250cc record.

Les 2 grands records du monde
Le kilomètre en palier à Dourdan soit la vitesse de 29 s. 1/5
123 kilomètres 293 mètres à l'heure
LANFRANCHI
sur sa Motocyclette
PEUGEOT
Le kilomètre en côte à Gaillon en soit la vitesse de 29 s. 3/5
121 kilomètres 621 mètres à l'heure
Les Fils de PEUGEOT Frères, constructeurs à Valentigney (Doubs), hors concours, membres du Jury à l'Exposition universelle de 1900.
Usines à VALENTIGNEY, TERRE-BLANCHE, BEAULIEU (Doubs). — Maison de vente à PARIS : 38 bis, Av. de la Grande-Armée

WATCHAND INSTRUMENTmanufacturerSamuel Smith moved into the automotive sector with the the Perfect Speed Indicator. The □ðrstexamplewasdelivered to Edward VII for the royal Mercedes. Smith's speedos would dominate the British motor cycle industry.

"THE ENTRIESFORTHECriterium of a Third of a Litre over a distance of 100km, which will be held at the Parc des Princes track, Paris, are already very representative. Peugeot Frères have entered six machines. Bruneau, of Tours, whose chain-driven motor cycle has been repeatedly mentioned in our columns, has three machines running. Thewinner of the last year's Quart de Litre contest, GeorgiaKnap, has one representative. Theother machines are Quentin, Moto Ideal, two Aiglons, and three representatives of the Magali. Sigonnaud, the famous French motor cycle pacer, is riding one of the Aiglon machines."

The Magali certainly looked formidable.

“TO CHECK FAST driving a contemporary suggests that a cart load of gravel be laid across the road, forming a slight bank. This bank, it is stated, would not incommode horse vehicles or cars travelling at the regulation speed, but would break the car springs of the scorcher. It is to be surmised that cyclists and motor cyclists would have to get oī and walk past the obstruction. Whenever these drastic anti-motor ideas are on the tapis the poor motor cyclist seems to be forgotten.”

“AN INTERESTING CASE came before the Leeds Police Court last week A gentleman named Ben Scarth, living at Harrogate, was summoned for driving a motor bicycle in Leeds without an identi□ðcation plate in front, and for not producing his driver’s license. The □ðrst summons was dismissed; the defence raised on the second was that he was not driving a light locomotive, but was riding a bicycle with motor attachment, and on the occasion in question he was pedalling the machine and the motor was not driving the cycle. On payment of the cost of the summons defendant was allowed to go away; at the same time he was told that if he failed to do so he would have to come another day and have the question discussed. Needless to say defendant paid the cost.”

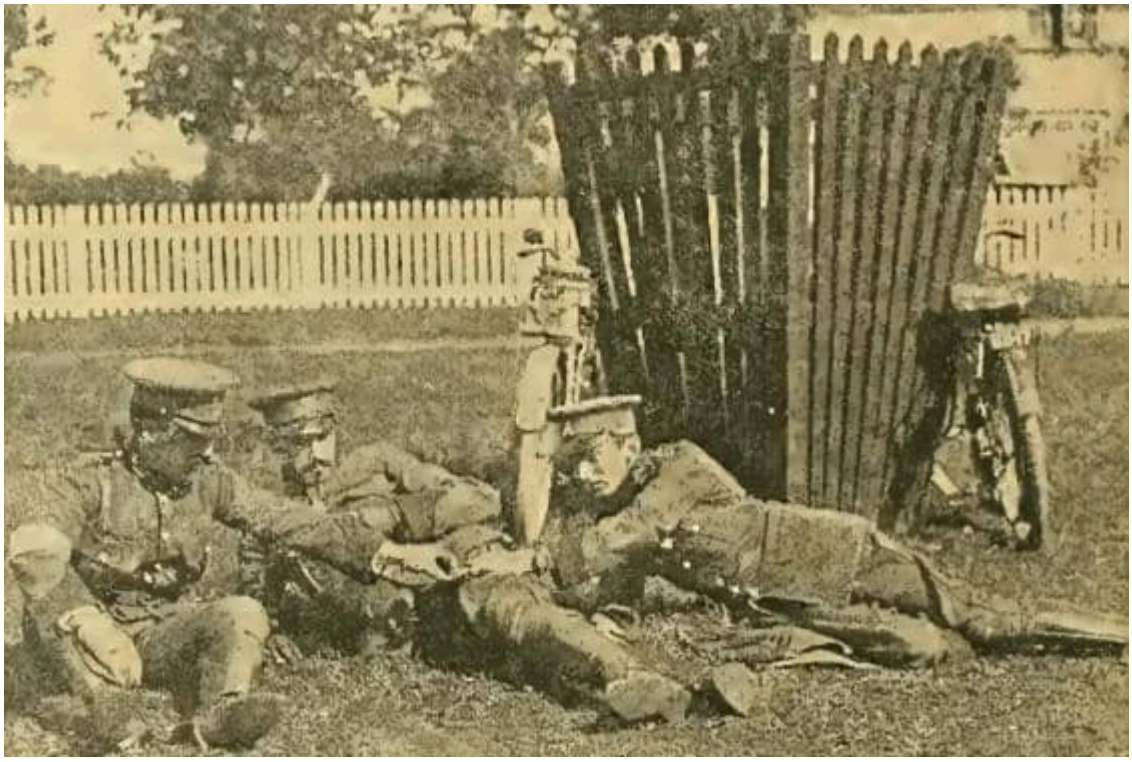
“THERE IS NO novelty in seventy pound machines; they were made two years ago, exhaustively tried, and found wanting, and one of their □ðrst defects was excessive vibration. The motor bicycle can be, and will be, lightened, but the □ðrst aim should be—and it has been with the majority of makers—eīiciency and a reasonable margin of strength. The lightening process will

be gradual, and not seventy pounds at a time. Weight is a great drawback, but it is at present the lesser of two evils."

Torao Yamaha made Japan's □ðrst powered vehicle—a 10-seat steamer which he used as family transport.

"WILL THE PEDALS BE RETAINED as a part of the equipment of the motor-bicycle of future seasons? Are they necessary even now? These are questions which are being extensively discussed amongst riders at the present moment, as they will undoubtedly in□ðuence the design of future types of motor-bicycles to an important degree…Up to now most motorcyclists will, I think, agree with me that pedals have proved of great value in nine machines out of ten. If we go back a matter of four seasons, we □ðnd that the small and ineīicient motor of that period was regarded more as an adjunct to the pedal-propelled machine. Manufacturers claimed that their 1¾hp machines could go twice as fast on the level without pedal assistance as the ordinary bicycle could, but it was rarely claimed that even a moderate hill could be surmounted without pedal assistance. But nowadays things have changed greatly; the small motor of to-day is greatly superior in point of eīiciency to its predecessor of 1900, and pedals are more or less regarded as a useful accessory for starting and controlling the machine over short distances when the engine is switched oī rather than as an aid to propelling the machine on stiī hills; but in reality, I contend, there are very few machines under. 2½hp that do not require pedal assistance at some time or other in their career. I regard the pedals as, in a sense, taking the place of a variable speed gear. With a medium-powered engine minus pedals more often than not it would be a case of walking up the □ðnishing stretch of a hill which a few turns of the pedals would have suīiced to surmount, and this, in practice, amounts to the same thing as putting a low gear into action when the hill becomes too much for the engine. A surprising amount of power can be put into the pedalling gear over a short period, even though the rider be not or the muscular order; and this feature is of the utmost value at critical periods. For actual starting of

the machine pedalling can certainly claim to be a very convenient method, though by no means the only one; there is the method, for instance, of running by the side of the machine for a few yards, dropping the exhaust valve, and then vaulting into the saddle—but this is hardly to be recommended to the novice, as it is more or less of an acrobatic performance. Of course, the easiest method of all is to have a clutch and hand-starting gear; then all that is required is to start the engine up, get into the saddle, and let the clutch in gently. This latter method, indeed, would appear to be the only practicable one for a 3 or 4hp machine, with its immense weight. On very heavy machines I really cannot see that pedals can prove of the least service. To be able to move the machine from rest an abnormally low pedal gear would have to be used, and even then the strain might have serious consequences for a rider with a weak heart. It was just this very diīiculty of 'starting up' a great dead weight by pedalling that helped to kill the quad. But for the type of motor-bicycle which, to my thinking, must become by far the most popular—a machine which will scale about 84lb all on and develop a good 2hp—the pedal gear will certainly be retained. In traīic riding the pedals give one a control over the machine which the rider of a pedalless machine cannot possibly have. True it is that something can be done even in this case by manipulating the machine a la 'hobby horse',' but it is not a method that commends itself to me. With the help of pedals, and having the valve up, one can go along at a mere crawl of two miles an hour in dense traīic, which would otherwise mean dismounting every few minutes. On greasy surfaces, crossing badly laid metals, and rounding corners, I invariably □ðnd it better to switch of the engine, lift the valve, and put in a few strokes of the pedals. A not-to-be despised convenience with pedals is the ability to jack the machine up on the stand and give it a preliminary test indoors to see that all is right. I now come to the last advantage of pedals—although this particular one is becoming more and more of a negative value, as it is so rarely necessary to make use of it—and this is the fact that, given a fairly light mount, if by any chance the engine should break down, or even should one run unexpectedly short of petrol or current, it is always possible to pedal the machine to the next town and get a repair eīected. I am quite aware that the 'anti-pedallists', if I may so term them, hold strongly to the view that a modern mount of good class should never break down, and that no rider worth the name would be so careless as to let his supplies run short. This statement looks well enough on paper, but can it be borne out in actual practice in the majority of cases? Personally, I do not think any practical engineer would stake his reputation that it would be quite impossible for any vital part of the complicated mechanism of a motor to go wrong, no matter how excellent the work or how careful the tests or inspection in its manufacture. We hear sometimes of a □ðawdeveloping in the propeller shaft of a great liner, and surely if it is possible for a steel shaft eighteen inches thick to break in two, despite all the tests and precautions modern engineering science can suggest, it is not unreasonable to admit a greater chance of a break on some part of a tiny petrol engine. I do admit that the ordinary type of pedal gear does not make an ideal footrest, and yet it is not uncomfortable by any means when one is used to the position—of which, by the way, it is possible to make innumerable changes, and thus avoid a tired or cramped feeling. Swing cranks, I am afraid, hardly □ðllthebill in their present form; they are rather susceptible to wear and derangement, and are awkward to manipulate into the 'driving' position. I rather favour auxiliary footrests of some kind, so that one can take the feet oī the pedals if desired. The anti-pedallists may have a stronger case than that I have just indicated: if so, I hope they will give us the bene□ðt of their experiences on the subject.



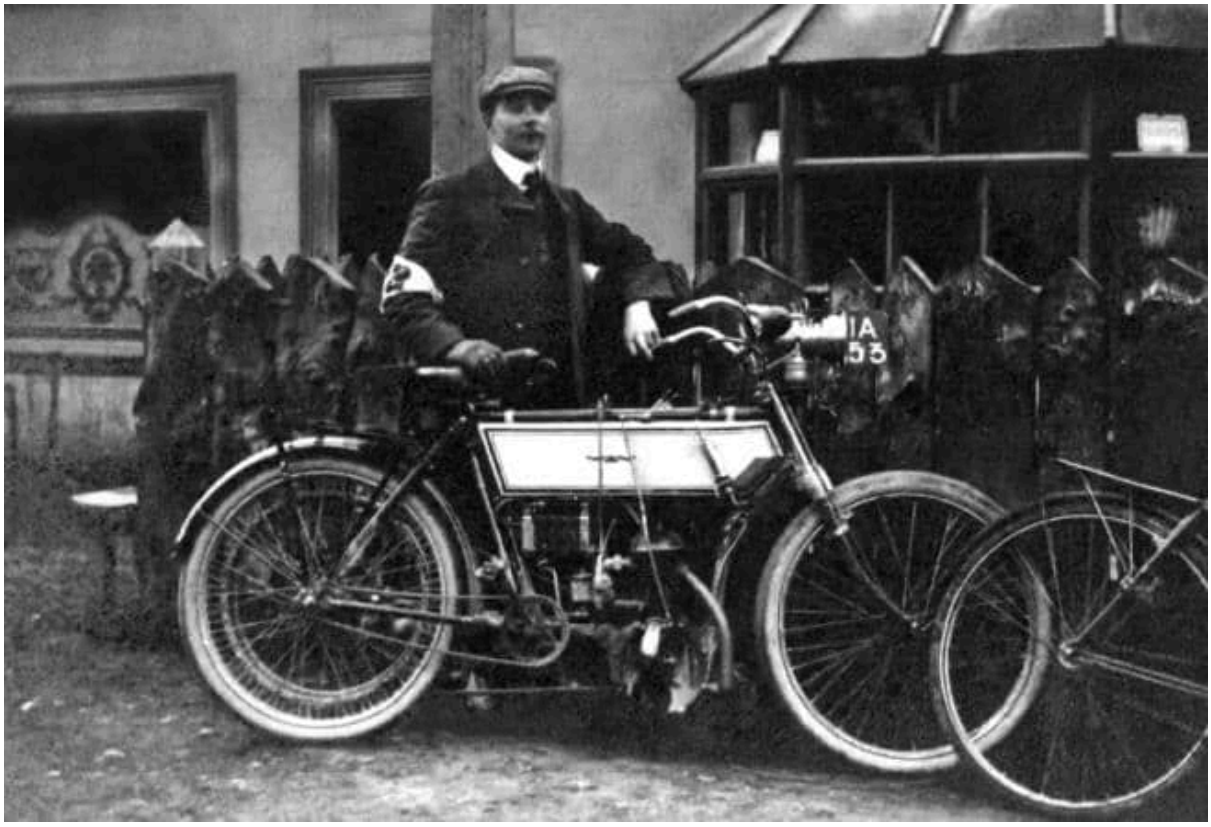
“Three motor cyclists were employed as despatch riders on the staī of the Duke of Connaught at the 1904 manoeuvres.”

“A WEEKLY PAPER PUBLISHES a novel speci□ðc against side-slip, which, it says, will save a severe tumble. The advice reads: ‘Get a few pennyworth of carbonate of lime and, before going for a ride, give the tyres a rub down with the powder; it will stick to the cover. Wet and grease have no eīect upon it, and it clings to the surface if there is a tendency to slip in turning a corner. When home is reached again the tyres may be wiped dry with a cloth. Carbonate of lime, however, would not injure them if allowed to remain on.’ Note: Carbonate of lime is nothing more nor less than chalk.”

THE AUSSIES HELD their □ðrst long-distance race; it was won by a 2hp Minerva.

HAILED AS IRELAND’S FIRST motor cycle race, a 200-mile reliability trial was staged on 19 July. In 1927 the Irish Cyclist & Motor Cyclist published a report, based on the winner’s recollections: “The competitors, numbering about thirty, were sent oī from Donegall Street, Belfast, at six o’clock…Their machines included such makes as Centaurs, Rexs, Excelsiors, Bats, Rileys, FNs, Ormondes, Minervas, Humbers, Raleighs, and Royal En□ðelds. The course was from Belfast to Derry, via Cushendall, Ballycastle, and Coleraine. Before Carrickfergus was reached everything possible—tool bags, spares, in□ðators—has been shaken oī the machines. Alex Parker took the lead at an early stage, but at Cushendall he retired, having lost all his petrol. Petrol stockists were few and far between in those days. John Burney…did not get □ðustered when apparently faster men passed him. He kept a steady pace while they wrecked their engines, and at Derry he had a substantial lead. He came home a winner by 45 minutes, with JB Ferguson second and Bertie Robb third. Mr Burney thinks that he averaged much more than 20mph. On the Saturday before the race he broke his crank bracket axle and was thus deprived of pedalling gear and the pedals, which he used as foot rests. He had abandoned the idea of starting in the race, but, on his way home, passed the shop of Bob Ireton, who was inside preparing his own machine. Burney told of his troubles, and he and Ireton between them made a repair which served the purpose on the day of the event. The premier award was a cup presented by the Marquis de

Mars, a French friend of the Hon Leopold Canning, now Lord Garvagh, who was then president of the Centre. At the time of the race M. Burney was the holder of the 100 miles cycle record over many of the roads used in the course, but he did not □ðnditnecessaryto use pedalling gear during the event." [***JohnBurney's sons, Johnand George, added to the family's trophy collection. Johnwon the 350 Class at the 1924 Ulster Grand Prix; George won the International Leinster 200. Both were friends with Stanley Woods—Johnmarried Stanley's sister, Violet. After WW2 Johnand Stanley became partners in a bike shop. And in 2024 Johngreat-grandaughter rode in a commemorative run over the original course, on her Royal Enĭeld.—Ed***]



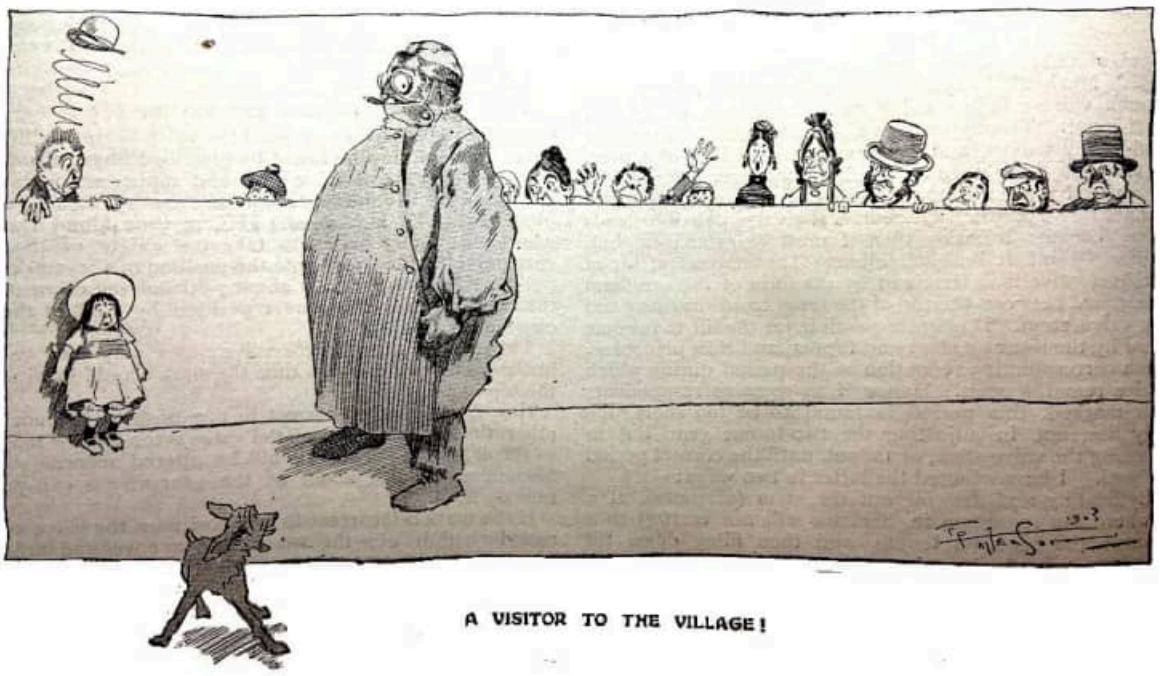
"Mr JPBurney, the well-known Dublin agent, and the machine on which he won what is claimed to have been the □ðrstroadracefor motor cycles ever held in Ireland."

John Burney's great granddaughter, Julie Horne, pictured in July 2024 with a 1904 En□ðeldatthe conclusion of the 120th anniversary commemorative run. About 30 modern and vintage bikes took part and, of course, Julie rode an En□ðeld

"NOTHING IS MORE UNNERVING to the motor cyclist than a constant fear that something will be encountered on the road which cannot easily be seen. With a good acetylene lamp which lights up the road for about a hundred yards, night riding loses all its terrors, and the light almost takes the place of a companion, as it illuminates the dark stretches of the road. In the winter acetylene lights are likely to give trouble when it is freezing, however slightly, and a very good plan to adopt is to take the lamp into the hotel when a stop is made; thus preventing any chance of the water being frozen when a light is required. After the lamp is lighted the heat from the burner will prevent freezing of the water in most patterns. In addition to the acetylene light an oil lamp should always be carried, and this should be kept warm as much as possible, to prevent the oil from congealing."

"FOR THE TRIPLE OFFENCE of furious driving, not showing his licence when required, and not having a bell or horn on his machine, a motor cyclist was tined £9 6d at the Pengecourt last week. At the request of the defendant's solicitor the magistrates reduced the □ðneby £2."

"SINCE THE NEW ELECTRIC TRAMS began to run in South London there have been numerous stoppages on some of the routes. A reader dismounted on seeing a stranded tram and oīered the worried mechanic his neat little four-volt testing lamp…We understand that his creditors wish to sell his machine."

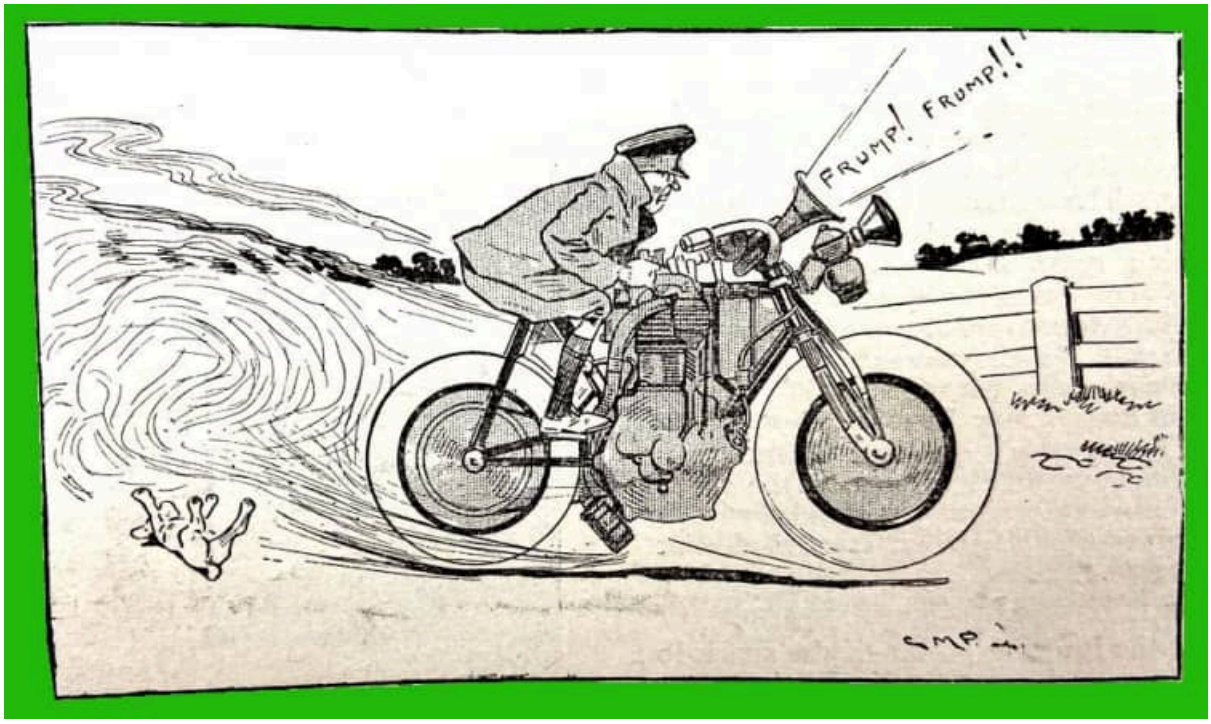


A VISITOR TO THE VILLAGE!

"THE LOCAL GOVERNMENT Board Inquiry into the application of the City of London for a 10-mile speed limit was held at the Guildhall on Tuesday last. Mr Moresby White appeared on behalf of the Automobile Club, and Colonel Holden, Mr ER Calthrop and others ware called as witnesses. The Secretary appeared on behalf of the Motor Union, and Mr Nisbet and Mr Roberts, the honorary secretary of the Blackheath Automobile Club, gave evidence. The same inspector, Mr Burd, held a similar inquiry relating to the Borough of Kingston on the following day, and will issue a report shortly."

"THE IMPORTANT MATTER of motor cycles and vibration has been engaging the attention of many of our largest makers for some considerable time, and several designs have been turned out that have not, perhaps, attracted the public as they have been expected to. But regarding the output of new designs very little in the annihilation of that enemy of our sport—vibration—has been arrived at which could secure for all riders of motor cycles greater comfort in travelling to even an equal quantity compared
with the pneumatic tyre. The spring frame models at present on the market have met with much favour, and used over fairly good roads prove more or less a luxury, while over the majority of town roads where one's pace is lessened to a degree an appreciable diīerence to found. And how many riders of this handy form of locomotive are patiently awaiting the improvements in 1905 models which are likely to eclipse all former years in special detail, if not in strikingly novel construction."

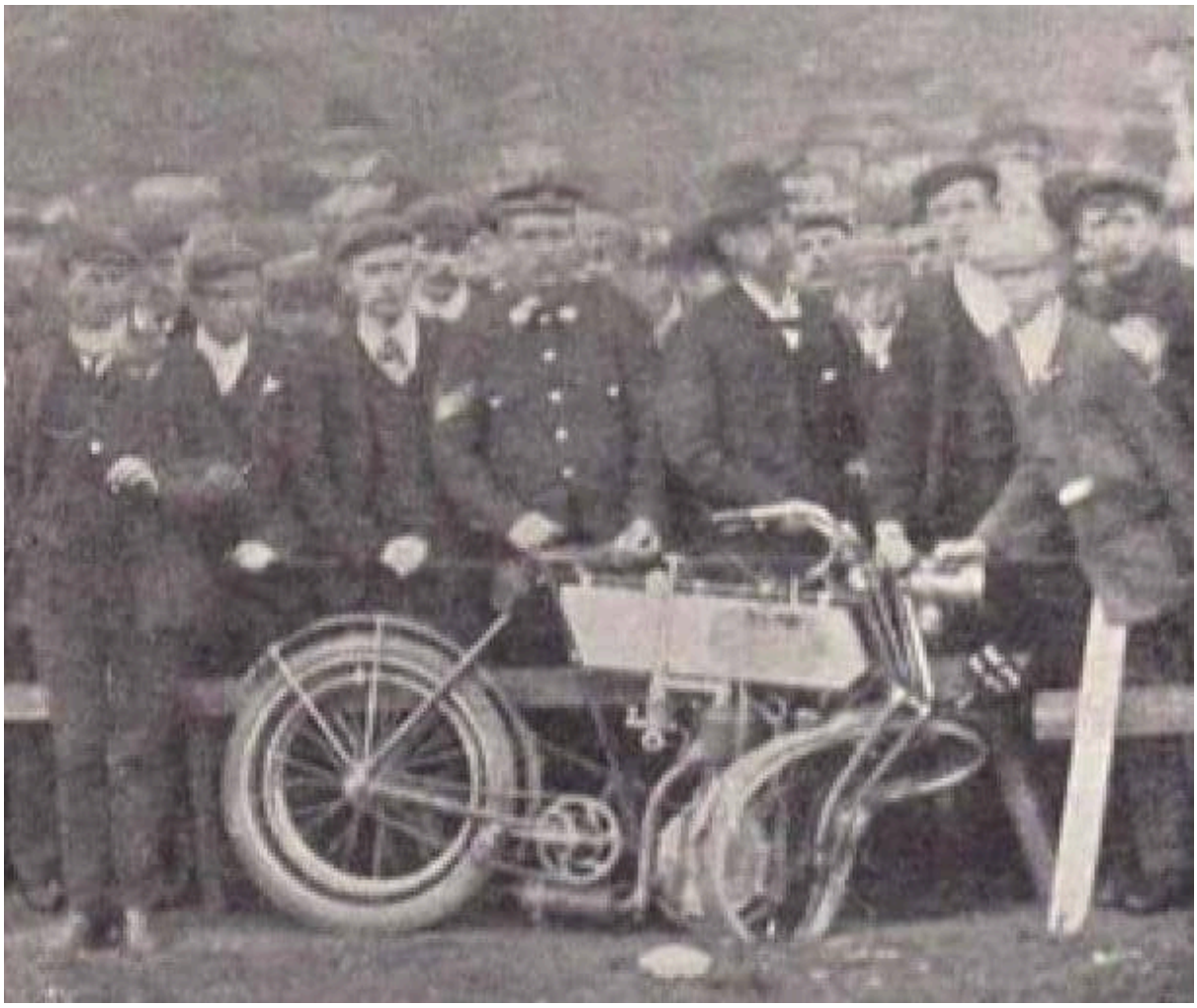
"WE HEAR FROM THE South British Trading Co that Mr Gordon Stuart, chief of the Johannesburg Fire Brigade, an ardent motorist, oīered a cup to the winner of a motor cycle race open to all comers from Pretoria to Johannesburg. A Mr Murkett won the cup, beating the previous best record time by 16min, Chater, the second man, being within record time. Murkett's machine was an ordinary 2¾hp Vindec Special, and considering that the previous best record has been beaten to the extent of 16min, it must be admitted that the Vindec machine is not only staunch and strong, but speedy as well. "



"Other people's views: The Nervous Pedestrian's view of the Motorcyclist."

"THE ONLY MOTORCYCLE races of the year in Lincolnshire were held on Wednesday at Lincoln, on the City FC ground. The meeting was held under the auspices of the Lincoln Wheelers CC, and included a two miles motor cycle handicap, open to the county and members of the club. The prize was the motor cycle club silver cup. Nine entries were received for the event, and three preliminary heats were run, the winners of each heat and the second in the fastest heat qualifying in the □ðnal. There was only one non-starter. In the □ðrst heat the riders were: HE Wilson, Lincoln, 2¾hp En□ðeld (holder of the cup), scratch; J Evans, Lincoln, 2¾hp Acme, 100 yards; and C Wallis, Lincoln, 2hp Fleet, 180 yards. Wilson was some time catching his men, but Wallis's engine began to mis□ðre, and he and J Evans were soon overhauled. A good tussle ensued for a while till Wilson got away and won by nearly half a lap in 4min 38⅘sec. In the second heat, W Evans, Lincoln, scratch, was on a 3¼hp Acme; S Evison, Sleaford, 10O yards, was on a 2¾hp Excelsior; and A Hornsby, Scunthorpe, 2½hp JAP, was on 150 yards. Evans Went at a great pace on the straight, but had to shut oī at the corners, but even then ran wide at the goal posts at the railway end, taking that bend at what appeared to be a perilous angle and very near. He, however, got round all right and won, but by only about 20 yards from Evison; Hornsby third. Time, 4min 46⅕sec. The last heat brought out G Bates, Grimsby, 3hp Rover, 50 yards, and W Pindar 2½hp Minerva. Bates, who is more used to banked cement tracks, would not take the corners it any pace, though he made good speed in the straight. Pindar got round well, and won in 4min 11⅘sec, but Bates gave up at the last lap, and so did not ride in the □ðnal as second in the fastest heat. The four □ðnalists were a good lot, and got round well, except W Evans, who took the lower corner near the goal posts wide. In the second lap, W Evans was coming op very fast, and endeavoured to pass, but failed to get round, coming with a terrible smash into one of the posts holding the wire ropes. He was sent spinning for about ten yards, rolling over as he went, and falling on his back. He, however, was only there momentarily, and, to the great relief of the crowd, got up and went to clear the wreckage of his machine out of the way of the other racers. The heart was, however, taken out of the sport, though the riders did not slow up appreciably, Pindar won he a few yards short of a lap in 4min 10⅕sec, nearly passing the second man,

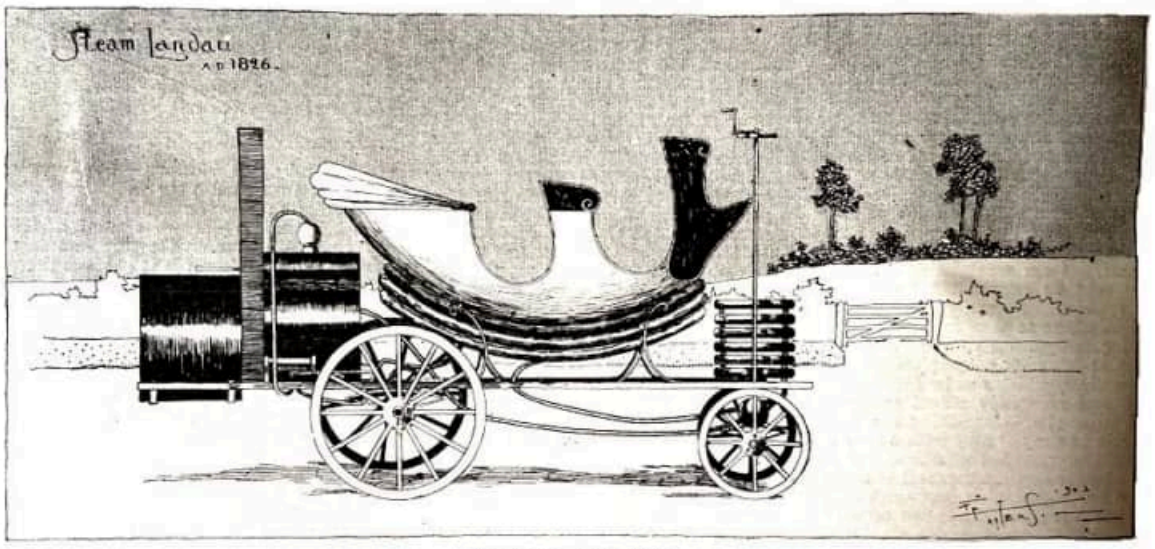
Wilson, on the post; JEvans third. Before the □ðnishoftherace we took a photograph of the smashed machine, which is reproduced here."



"The smashed Acme Motor Bicycle at Lincoln Sports."

"HANDLE-BARCONTROL.Thiswill next season probably become quite the thing, for, after all, simplicity of design and working is the chief point in most new converts' opinion. Somuch has been said about weight that manufacturers no doubt will turn their attention to this important, question, but whateveris done the diīerence cannot be great, and but for the handiness of the mount within doors it would appear that the question is not an absolutely important item in the turn-out of a machine. As with the ordinary pedal-propelled mount it is a matter of the moment that improvements in motor cycles must be looked for year by year, and whether many are improvements or merely alterations in style must be proved by those on the look out for a genuine luxury in the possession of a good class motor bicycle."

A MOTORCYCLINGFRIENDwhorides a 2¾hp FN. recently allowed us to have a short spin on his machine. Thepower on this motor motor was transmitted through a Perrychain belt, which did the work it was intended to perform in a highly satisfactory manner. Themwas no slip, and yet the drive was by no means harsh."



PEEPS AT THE PAST.

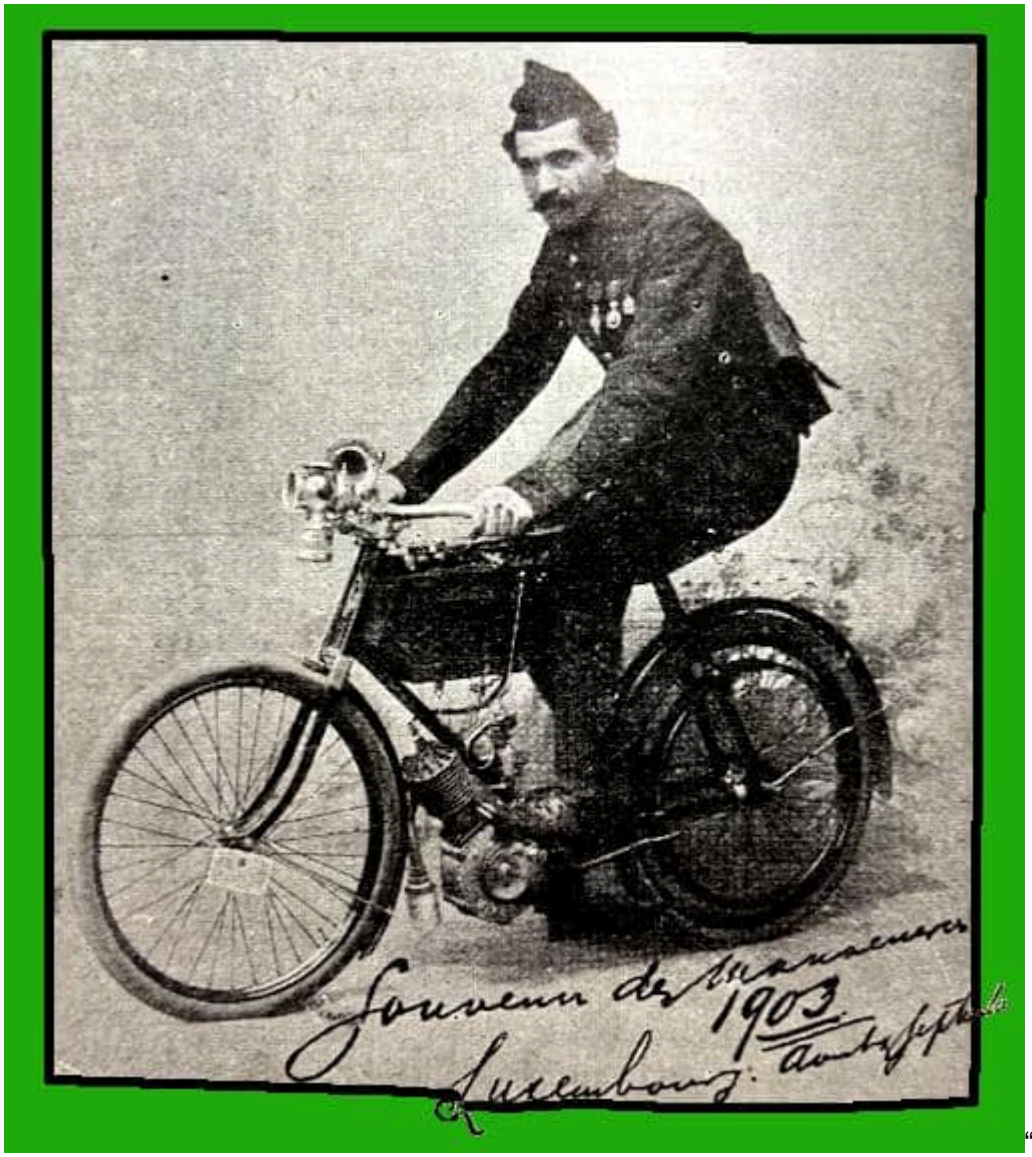
"A MOTORTHATISmaking good headway is the White and Poppe, which possesses a useful feature in its detachable valve seatings. Thesecan be removed by undoing two bolts, and all motorists who have experienced valve troubles will at once see the advantageof this method. Theengine has 80mm bore x 85mm stroke, mechanically operated inlet valve and large bearings. All details havebeen carefully studied, the paraīin cock on the cylinder and the valve lifter being carefully thought out. Both the air and water-cooled enginesare admirably adapted for driving forecars or safeties that will be used in conjunction with attachments for a passenger."

"'MOTORCYCLESARENOWmuch in request at the Crystal Palace and Herne Hill cycle tracks for pacing purposes. At Herne Hill, Callaghan steers one of the fastest machines, and Chambers and his Bat are in request at the Palace.'"

"RIDERSOF MOTORCYCLESfortwo should never forget that, though they may omit to carry split pins, there are other articles of almost equal use which ladies never omit to insert in their lovely tresses. Hairpins!"

"AT THESOUTHERNMOTORClub'shill climb for a gold medal, hold on Saturday, the □ðrstplace was won by Mr JJPugh.of Clapham on a 3½hp Minerva engine with Trimo. Mr CH Pughhas ridden Minervas of various hp for three years, and expresseshis high appreciation of their excellent qualities."

"IN THERECENTAutoCycle Club members' reliability trial, Mr JJLeonardrode a Lurquin-Coudert. Thisis a light weight though powerful Frenchmade motor cycle that conforms more to the standard Englishmachine than' the majority of Continental makes. For instance, It is provided with a plated brasstank of two gallon capacity, two eīicient brakesand wide guards, valve lifter, silencer cut-out, etc. Theengine ie unusually light, a good feature being interchangeable valves. A large oil pump is carried in an inclined position on the side of the tank, this being easily accessible from the saddle, and instead of the usual two-way tap an ingenious ball valve is □ðtted."



"A Minerva Motor-Bicycle which has been used in the Belgian Army Manoeuvres with great success."

"THE MOTORCYCLE PRESENTED A FIFTY-GUINEA CUP to the Motor Cycling Club "for competition among teams representing clubs of Great Britain". Each club entered a team of six riding four solos and two 'passenger machines' over a 100-mile course between Bicester, Aynho and Deddington, Oxon. Ixion reported: "A twenty-□ðvemiles out and home course was originally □ðxed upon, to be covered twice. However, as in the team trials a checker to each mile will be necessary, since each rider is to score one mark for every mile covered without a stoppage, it became clear that a twelve and a half miles out and home course would be ample even for this short stretch about a score of reliable marshals will be requisitioned." The course included four climbs, the steepest of 1 in 12. Five clubs entered: The MCC, Coventry MCC, Guildford C&MC, Peterborough &DMC, and the Southern MC. Riding for the MCC were F Hulbert (3½hp Hulbert-Bramley with Minerva engine) who went on to become works manager at Triumph and Billy Wells (2¾hp Vindec) who was Hendee's UK manager. The Coventry team included RW Ayton (2¾hp Triumph), the original patentee of aluminium cylinders with steel liners. And the Guildford riders included AW Wall (3½hp Roc and trailer), who invented the Roc gear and the Auto-wheel. Most of the passenger machines were trailers or tricars—only one of the new-fangled sidecar out□ðts was entered. The Coventry MCC won the cup, ahead of the MCC,

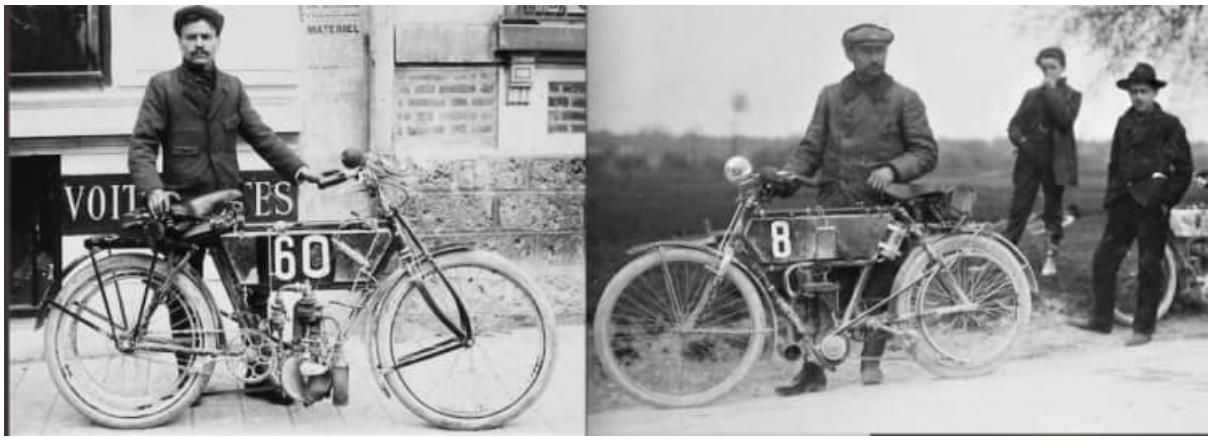
Peterborough, Guildford and Southern; the team trial would become a popular annual event—as would the MCC's London-Edinburgh Trial. Years later Ixion dexcribed the 1904 run as "the genesis of a ride which has become a classic…It has long since become contemptible as a test of riding skill or mechanical reliability, and today men enter for it either as oldsters for the sake of 'auld lang syne', or as novices seeking to earn their spurs in competition work. But in those days many authorities criticised the organisers for subjecting motor cycles to an incredible task. It was easy to □ðndheavylayersthat not a solitary machine would reach Edinburgh at all, much less within the stipulated 24 hours. Some of the entrants made a number of trial trips over the section to Grantham, which had to be covered in the dark. When SF Edge took the chair at the oīicial dinner prior to the start in Paternoster Square, the proceedings wore an air of 'Ave, Caesar, to morituri salutamus'. London turned out en masse to speed the parting heroes. The men rode oī with palpitating hearts into the bottle-neck of a huge crowd. All these forebodings were shattered. Twenty-two machines out of 46 starters won gold medals. To this day a '□ðrst' London-Edinburgh medal remains a dearly-treasured possession. I remember that one rider carried no less than four 20 ampere-hour accumulators. Most machines carried two or three lamps; as a lamp used up its charge of carbide it was pitched into the ditch, for its spring bracket was pretty certain to be a wreck by this time. Several men rode for miles lampless, steering by the glow thrown on the road from the lamp of the next man ahead."

The ACC staged a tricar trial; the Blue 'Un chipped in with some medals.

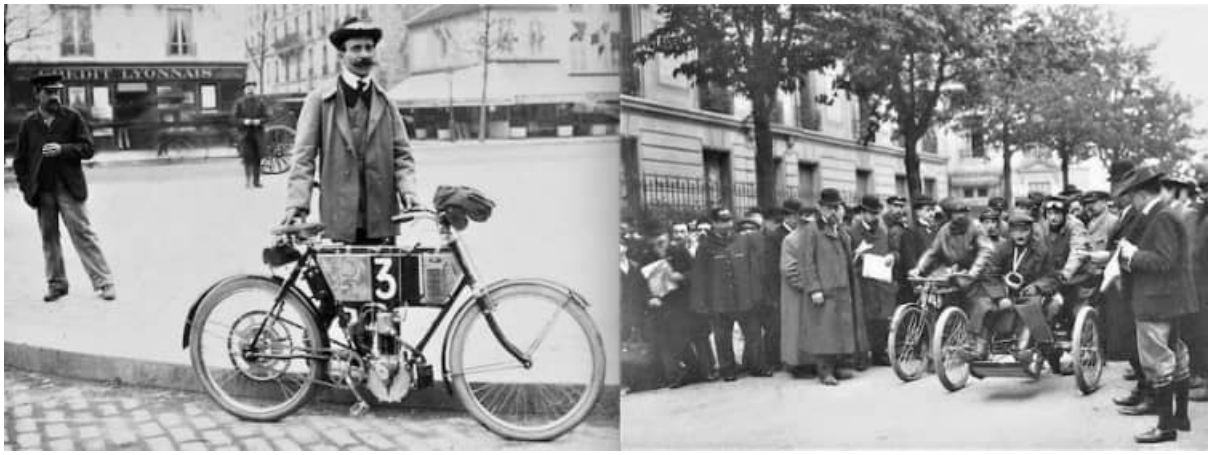
Joseph Pennell was an American illustrator, sometime long-distance cyclist and obnoxious twerp who made disparaging remarks about the Edinburgh trial and motor cycling in general. This aroused Ixion's ire. Enjoy!

"I SEE IN THE CTC Gazette that Mr Joseph Pennell compares his 3hp tricycle to a friend's 16hp De Dietrich very much to the advantage of the latter, as far as reliability is concerned. I don't happen to know what machine Mr Pennell is riding, so I can criticise freely. Now I have always understood Mr Pennell is not to he taken seriously as a motor cyclist. That if the roads are greasy—Mr Pennell would come over. That if there was a cart in sight—Mr Pennell's machine would charge it. That if there was a sharp comer—Mr. Pennell would sprint straight ahead. As he broke his back axle and twisted his frame, he has evidently been living up to his reputation. But there are motor cyclists living who have never done either. He used up four belts—I can show

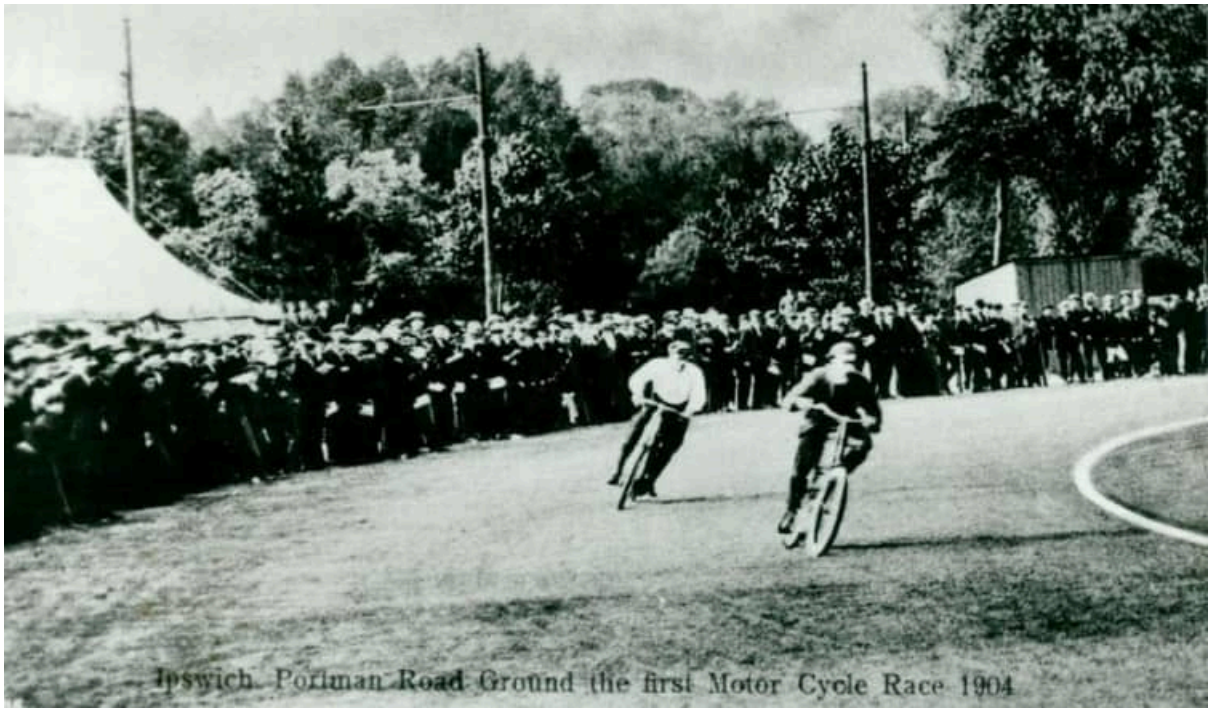
him one that has done the same distance without attention. He grumbles about his ‘silly 2in or 2½in tyres’. Tyres, Mr Pennell, are a matter of luck; but even here the motor cyclist has a big scoop over the car owner. Mr Pennell lumps his own disappointments and the fact that only 22 riders out of 46 came through the Edinburgh run into one big indictment against the motor cycle. As far as Edinburgh goes, there were 24 failures. Seven of these never intended to get to Edinburgh, but just started for the fun of participating in the early stage of an historic event. Eight more met with accidents, more or less slight, which practically put them out of the running. Four of the remainder found their physical strength unequal to the task, and □ðve, Mr Pennell—only □ðve—were unwillingly debarred from □ðnishing by the unreliability of the machines they rode. I am open to correction, but these results are derived from the oīicial schedule, and my own knowledge. The fact is, Mr Pennell is still a member or that large army who ride a motor cycle as long as it will go, and then get down and wonder what’s the matter with the crazy thing. Few of them take themselves seriously or make any real complaints; but all the same they do lots of harm. No complicated piece of mechanism can work everlastingly without attention. An express locomotive does its six hours’ run on a steel track, and then has 18 hours skilled attention, if it needs it. I could refer Mr Pennell to novices who have run the simpler motor cycles, such as the Quadrant, for months, without other troubles than a punctured tyre. A good motor cycle is not only tremendously simple, but marvellously reliable compared to any other piece of mechanism which is trusted in the hands of a novice and subjected to enormous strains. I hope Mr Pennell will not be oīended that I have, for once, taken him seriously.”



Competitors in the Paris-Bordeaux-Parisrace: Messieurs Canale et Bannard…

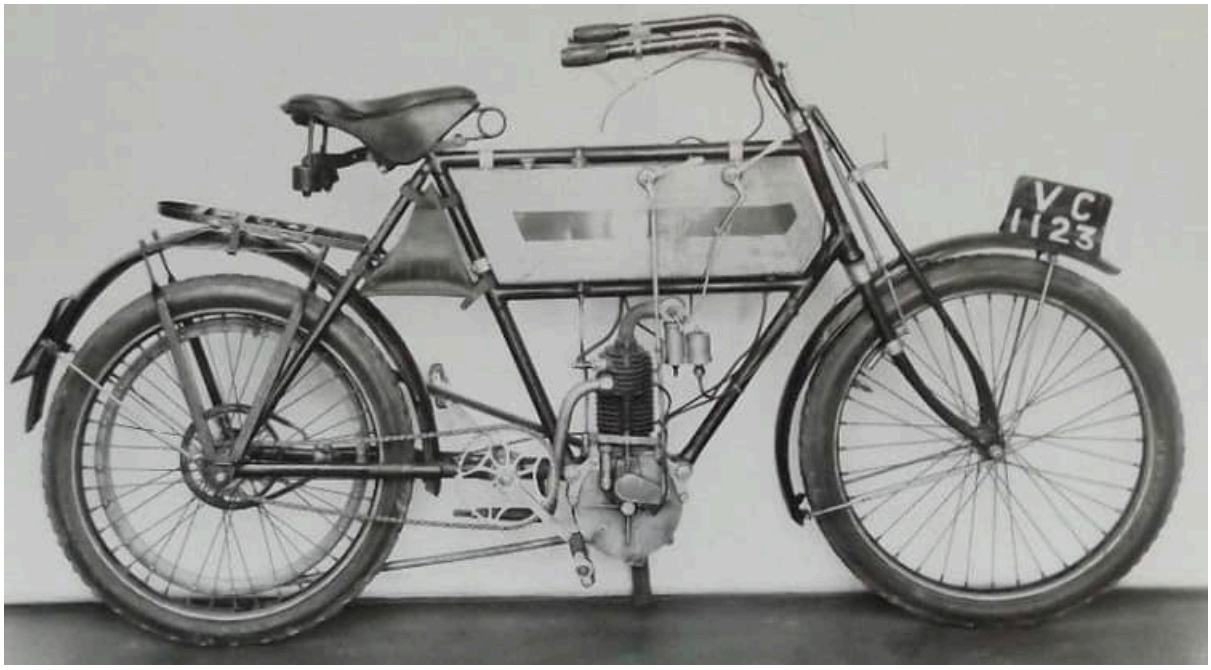


…and Fonion and La Foudre. Fonion rode a Bruneau powered by a Zedel engine; the following year Bruneau started production of its own 498cc vertical twins. Riders started two at a time at one-minute intervals.

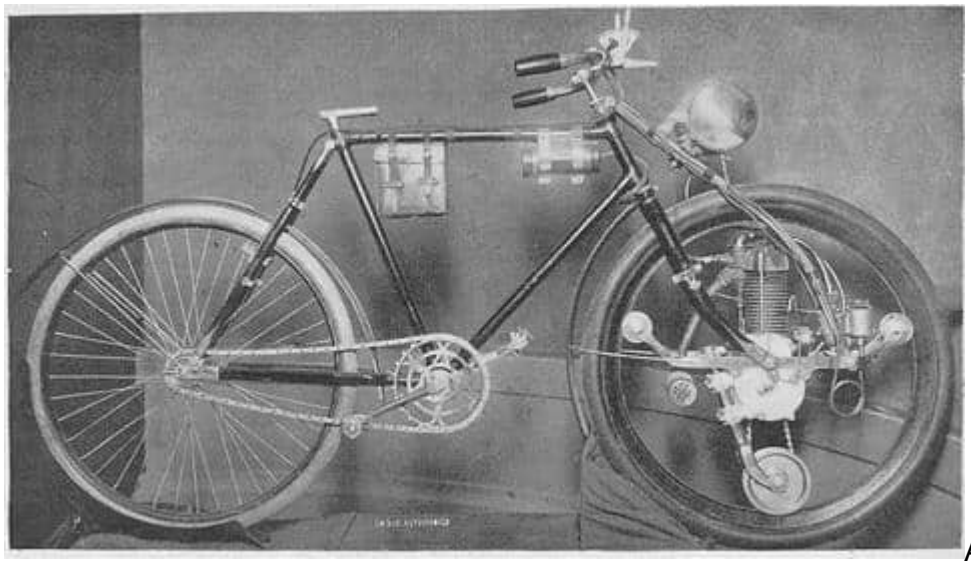


Back in Blighty this period postcard, in case you can't read the caption, depicts: "Ipswich, Portman Road Ground the □ðrstMotorCycle Race 1904."

"LASTWEEKWEHAD THEPLEASUREofa trial spin on the new Triumph motor bicycle. The machine is □ðttedwithavertical air-cooled 3hp engine, and weighs complete about 140lbs. The frame, which is built from seat tubes of 22in and 24in, is made from stout gaugetubing, and is specially reinforced where required. Thewheelbase is slightly longer than the majority, namely, 53in from centre of front wheel to centre of back wheel. This, Mr Schulte explained to us, had been done to provide for increased storage accommodation for oil and batteries, and to steady the machine in grease. Thewheels are 26in diameter, shod with 2¼in diameter Clincher motor cycle tyres, extra stout spokes being □ðtted.Theenginehas a bore of 75x80mm [353cc] and develops 3hp at 1,800 revolutions a minute. Thepetrol is vaporised in a Longuemare spray carburetter, the exhaust valve being □ðttedwitha governor and valve lifter. The governor is worked by a lever □ðttedonthetank, and causes lesser or greater lift of the exhaust valve according to the speed required. In addition to control by means of the exhaust, there is a combined switch and exhaust lift lever on the handle-bar. One of the special points of the Triumph motor cycle will be the improved design of tank, which is made of a special stout gauge acid-resisting metal having only one longitudinal seam. This should prevent any possibility of leakage, besides rendering a somewhat delicate part of the machine less liable to damage through falls or other accidents. Thecapacity of the tank is one and a half gallons of petrol and two pints of lubricating oil. Two accumulators are □ðrmly□ðxedinthetankbymeans of a special clip, which is both neat and prevents any possible short circuit through the terminals touching the metal of the case. Theaccumulators are connected up to a two-way switch, and to prevent any possibility of damage to the batteries an automatic cut-out is provided. Brook's B90 saddle and two toolbags complete the equipment of one of the most up-to-date motor cycles that we have yet examined."



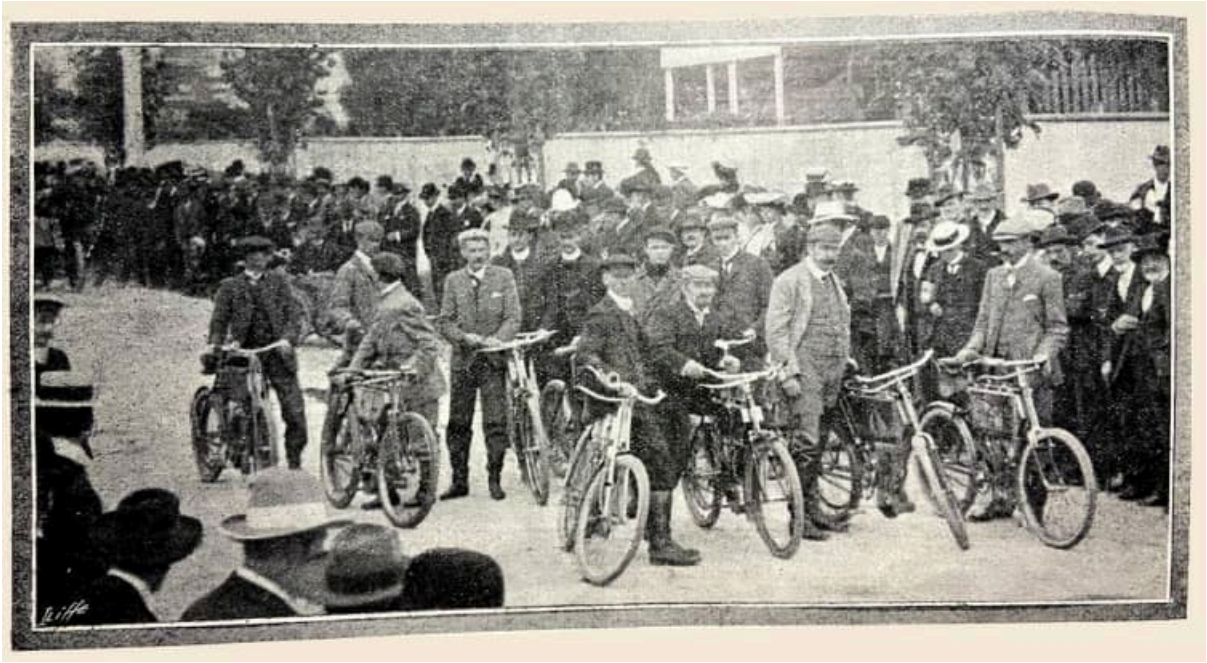
The 1904 Triumph developed 3hp at 1,800rpm.


Among the exhibits at the Paris Salon was this remarkable powered front wheel, courtesy of a designer named M Roux.

Clearly a wedding party, these stylish motor cyclists were pictured in Vienna.

“IN ORGANISINGITSFIRSTHILL-CLIMB,open to members only, the Auto Cycle Club has drawn up a most sensible net of rules, which should not fail to ensure the weeding out of the weaklings from the eīicient machines. No pedalling is to be allowed. In this rests the success of the undertaking, which, we think, cannot fail to ensue. Of all competitions a hill-climb is the most interesting, and there is no sight more gratifying than to see a £50 motor bicycle scorn a gradient of 1 in 9 in a manner which would put a £500 car to shame. If pedalling were permitted, it would not mean that necessarily the best engine would be the winner of its class, but probably, or, rather, more than probably, the strongest rider, or the man who was wise enough to use a suitable pedalling gear. There was a tremendous outcry recently against weight in motor cycles, and perhaps not without reason; but we ask our readers, if we take oī our 2½hp or 2¾hp engine, which will carry us up any average hill without pedal assistance, and to save a few pounds in weight, replace it with a 1½hp or 1¾hp motor, which will cause as to break our backs in pedalling up a 1 in 14 gradient, is it worth while to sacri□ðceeīiciency for lightness? Let us now consider a few arguments against the light machine. Its advantages have been put frequently and pretty clearly before us of late. Its highest speed is little over the legal limit; its engine is geared low, and consequently has to run at a high rate of speed to maintain its power. This means excessive vibration, and increased discomfort in proportion. If it is taken into a crowded street and asked to crawl behind an omnibus, its small □ðywheels cause the engine to give up the ghost at a critical moment. You are told that it will climb any hill with light pedalling. Try it on a really bad one, and you will □ðnd the light and bene□ðcial exercise develop into such strenuous over-exertion that you will have to get oī in disgust and push the weakling up. The advocates of this class of machine—the introduction of which will turn our healthy and charming pastime into a farce—tell us that it appeals to the old cyclist. We rather doubt it. If it does, it is the old cyclist who has tried neither the light nor the heavy machine. They also tell as that the remedy for the lightweight’s obvious defects is a two-speed gear. Surely a change-speed gear is out of place on a single machine. The great advantages which the eīicient motor bicycle has over the car are its simplicity mechanically, its lower price, and its cheapness of upkeep. If we are going to advocate the introduction of these complications into the poor man’s motor car, the poor man will be the □ðrst to blame us. Of course, there are some cyclists who would like a machine of

the type we have just described, but unless they live in a level district, and are capable of keeping their mounts in perfect trim (they have absolutely no reserve of power), we advise them to adopt nothing under a 2½hp. No one more than ourselves would like to see a light motor bicycle, but at the present time such a machine does not exist in an eīicient and commendable form, and in our opinion it is in every way possible to choose the heavier machine. The public want them because the public are wise and know what they really require. Many of them have tried the light powerless machine and found it wanting. The majority of manufacturers realise this, and the manager of one □ðrmtowhomwe were talk-ing the other day, when asked whether he found that customers preferred the 3½hp to the 3hp machines, replied most emphatically in the aīirmative. We do not, of course, advise a beginner to invest in a machine of such a high power, which two years ago was considered murderous and appalling, but as soon as he has mastered his □ðrstmachine, and found out what hills it will not take. this is the mount which he will necessarily choose. In conclusion, we beg our readers to ask themselves whether the machine which will go anywhere and do anything is not, after all, the one they wish to buy? and surely not the mount which, though it may be easily wheeled up a □ðightofnineor ten steps, will jib as soon as its rider comes to a hill of any severity. If it were possible to have a very light machine with all the advantages of the heavier one in point of power and hill-climbing, we should be the □ðrsttoadvocateit, but to advocate a lightweight motor bicycle for all purposes is not our policy. Indeed, it is obvious that a machine which might suit a nine-stone rider in level country would be useless for a twelve-stone man in a mountainous one, however well he might pedal on hills."



"Our illustration represents the inaugural run of the newly-formed Automobile Club of Victoria (Australia), which was held at Aspendale Park on February 20th. Over £9,000 worth of motor vehicles was present, and marshalled in front of the cars, which extended for over a quarter of a mile, was a large body of motor cyclists, a section of these being represented in the picture."

“The □ðrstorganisedmeetof the Melbourne Motor Club at Princes Bridge, Melbourne. Our Australian correspondent says that it only represents a few of the members who took part in the run.”

“SPEEDANDBRAG.Wehave had our attention drawn within the last few weeks to a practice which we think might with advantagebe dropped on the part of a good many motor cyclists and auto-mobilists. We refer to the braggingthat goeson with regard to the distance that can be covered in a certain time. In many instances lately we have found that the culprits are newcomers to the sport, and, being possessed of a fast machine, do not lose the slightest opportunity of publicly stating in places of resort that they have come from so and so in such and such a time, or previously done from so and so to so and so in so many minutes. If this was con□ðnedtotheirown club members and fellow riders, we should have nothing to say on the subject, but, unfortunately, it is not con□ðnedtothem,and in consequence it is talked about pretty considerably amongst non-motorists, till it graduallygets round to the ears of a motorphobe, who then seizesupon it as a subject to ventilate his grievance. A speedy ride on a motor of anydescription is most exhilarating, and can be undertaken with safety when there is no traïic about, but, evenif 20 miles are covered in half an hour, there is no actual necessity to tell everybodyyou come across about it. It is not a verydiïicult matter, if you take a 20 miles run out on a fast road, to cover this distance in some districts without coming across any traïic worth mentioning, but when you arrive in the next town and state that you have come 20 miles in half an hour, it naturally opens the eyesof others to the fact that you have been racing along, and, without making enquiries as to whether there was any traïic on the route, they immediately say, ‘Oh, how dangerous.’This little caution is given at a time when there are numerous owners purchasing new machines, and novices coming into the ranks of motor

cyclists; we therefore think it a good opportunity to draw attention to it. We are in a position to prove that there is a good deal more harm done to the cause by thus advertising what the mot cycle or car can do than by quietly doing it and saying nothing about it."

"A consignment of Pratt's A arriving at Mr AW Marriot's Depot, Hereford, for use in the Small Car Trials. The motor cyclist in the illustration rode with the cars throughout, and made the arrangements for the supplies."

"WHILE EVERYONE NATURALLY thinks his motor cycle to be the best procurable, there are, without a doubt, certain things in most machines which call for special attention and testimony, and if I may again trespass on your valuable apace I should like to write a few words about the spring forks now □ðttedtothe Quadrant motor cycles. Apart from the fact that they entirely destroy all jarring vibration, which no many complain of, a recent incident proves them to be a safeguard in encountering obstacle. of no mean height. At a garden party I was asked to exhibit the qualities of my 3hp Quadrant motor cycle. I accordingly rode it down the drive, past the house, where the spectators were assembled, and on to a narrow road leading to the stables. Getting into a deep rut, I could not turn at the bend. No doubt I was going too fast, and the result was that my motor took me straight into a rockery, a foot high, rising to two feet at the back. To my astonishment and to everybody's, the machine, thanks to the spring forks, climbed the rockery in a most clever manner, and landed me quite quietly amongst the evergreens at the back of the rockery. The only damage resulting was a bulge in the back wheel, which I soon took out. I am perfectly certain that had it not been for the spring forks my front wheel must have been buckled, my machine otherwise damaged, and I must have come to earth. Experiences of this kind go to prove the value of such an invention, which the Quadrant □ðrmare luckyenough to possess.
EHF May."

"IT HASBEENDECIDED to elect a sub-committee of the Auto Cycle Club for the purpose of dealing with the pastime of motor cycling as distinct from the racing section."

"UP TO THE DATE OF going to press no more entries have, we hear, been received for the motor cycle side-slip trials. It is a pity that a few more enterprising folk do not give publicity to the devices they have invented."

“REXMOTOR-BICYCLECLUB.Amongrecent candidates fcr member-ship to the above club are the following: Monsieur le Comte Avvo. Alfred Peracca, Turin, Italy ; Monsieur Andrea Montu, Turin, Italy; Monsieur le Comte di Montonaro, Turin, Italy; Monsieur Guiseppe Corte, Turin, Italy. We are asked to state that every user of a motorcycle is eligible for membership in the RexClub. Thesubscription is the nominal one of 2s 6d, which includes a handsome club badge. Application for membership, accompanied by this subscription, should be made to the secretary, 24, TheButts, Coventry.”

“ANOTHERCHALLENGETOTHEworld emanating from a record holder appeared recently in one of the sporting dailies, but at present it does not appear probable that it will lead to a match. Such challenges □ðavourmoreofthe pugilistic world, and do little good to the challengers.”

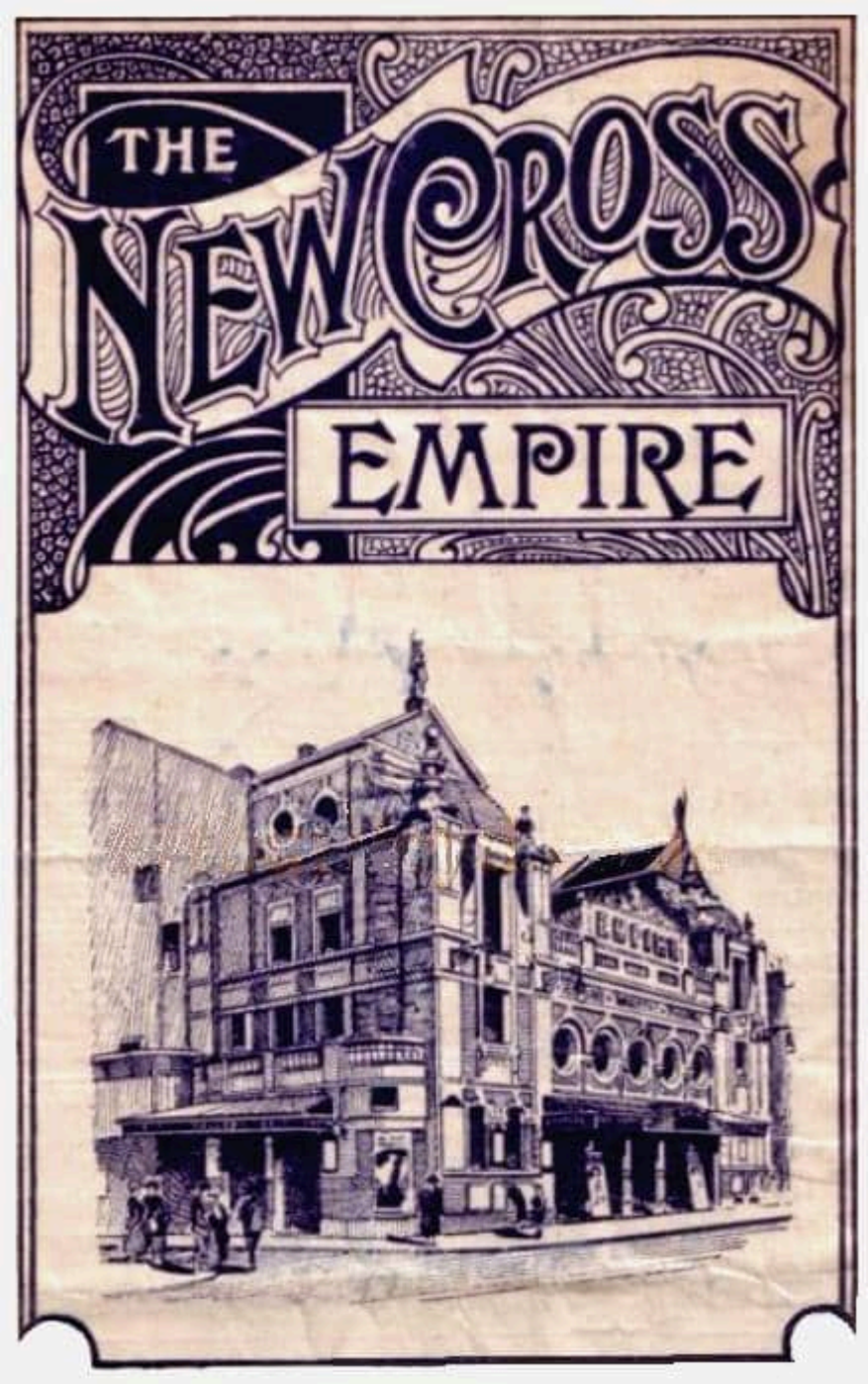
“The Austrian Petrol Consumption Trials. Filling up the tanks. (Right) Lieutenant Stohanger, a competitor in the Trial.”

“MESSRSBINKS’SENGINEER,aMr David Roberts was summoned for furiously riding a motor cycle in Burton Street, Nottingham. Therewas a unique defence to the case. Dr Bottrill said that Messrs Binks had been experimenting with a new machine, and the defendant was sent out to try the new method of ignition. He went down Burton Street at a slow pace, but on turning and starting the engineto come back, the machine developed a speed which took the driver by surprise. Themachine referred to is apparently the four-cylinder Binks engine which has been under test for six or seven months, and had not given the results which were anticipated, and it was therefore decided to try a new method of ignition, with the above result.”

“SIDE-SLIPPINGISA GREATbugbear to motor cyclists, yet the risk is greatly exaggerated. The proper thing to do is to cross tram lines at as wide an angle as possible, and to keep oī wood setts when they have a thick coating of slime on them. Drying roads are more dangerous in this respect, too, than wet roads. People often ask which tyre has the best anti-slipping corrugations. A Northern correspondent writes that his experience is that corrugated treads make no appreciable diīerence. He says that he had three pairs of pneumatic tyres of the original smooth pattern, and in two of these cases the tendency to skid was no more marked than it has been in recent years with all kinds of anti-slipping corrugations, and basket patterns and what not. In the third case the machine was always skidding in mud or thick dust, but these propensities were not mitigated in the slightest degree when the smooth tyres were taken oī and a corrugated pattern substituted. This seemed to indicate that the skidding tendencies were due to the machine itself, and not to the tyres, and our correspondent thinks lesser liability to side-slip depends almost entirely upon the attention paid to frame design.”

“THE MOTORCYCLINGCLUBisfast completing its arrangements for the twenty-four hours’ run from London to Edinburgh. Thestart will be made on May 20th from the GPO,the historical point from which the old mail coach to Edinburghoriginally started. TheNorth RoadClub has always started the London to Yorkride from the same point, which givesthe matter additional interest now the motor cycle is being used in place of the pedal-propelled machine. Motor cyclists should note that this ride, which will no doubt often be referred to in the future, is open to members of the club only, and if they wish to participate in the run, it would be well for them to put themselves in communication with the honorary secretary, Mr JHReeves,2, Penywern Road, Earls Court, London, SW. Theentries close at an early date, therefore little time is to be lost.

“THE SIDECARHASJUSTreachedAmerica, one having recently been en evidence on the Ormond Beach, one of those vast tracts of hard sand which our American cousins are □ðndingso suitable for speed tests. One of the American automobile papers refers to it as a. ‘sociable attached to a motor bicycle, which appeared to run well on the smooth sand track, but, of course, was not suitable for road work’.”



"The Staig Troupe are appearing at the New Cross Empire in their daring exhibition of motor cycle racing on a track suspended in mid-air. This is their □ðrstappearanceata London Hall."

"0NE OF OURCONTEMPORARIESinarecent issue inserted a paragraph which implied that motor cyclists had a most haggardappearance when on their machines, and queried the reason why this should be the case. If the paragraphhad been con□ðnedtothecirculation of the publication in which it was inserted we do not think any very great harm to the cause of motor cycling would havebeen done, but when it happens to be quoted in a leading daily with a circulation of about half a million copies, which goesall overthe world, it becomes a serious matter. Of course, there is no truth in the statement whatever. Motor cyclists do not wear any diīerent expressionsfrom other users of automobiles, and to sayanything to the contrary is only an absurdity. We havenoticed for some time that the particular paper in question gathersa

good deal of its motor cycle information from the pagesof TheMotor Cycle, and we should be inclined to think that its exchangecopywas mislaid in the post on this particular occasion, and it was put to considerable trouble to □ðllthemotorcycling column in consequence. At least, one would be inclined to think so, judging by the paragraphto which we refer above. Themotor cyclists in the paragraph are alluded to as '□ðyingby'.Doesthewriter mean that he spends most of his time walking or looking out of the window, or is he a driver of a car which was intended to do thirty miles an hour and will not? One might as well arguethat ladies playing golf looked haggardas to saythat motor cyclists present any other than their usual appearance when enjoying their exhilarating runs."

"ACCORDINGTOTHEEveningNews a cycle motor weighing but 7lb, and developing 2½hp, is the latest invention. Further particulars would be welcomed."

"ONE OFTHEMACHINESwhich completed at the recent □ðvemileseventat Canning Town was □ðttedwitha surface carburetter, but the machine never had a look in."

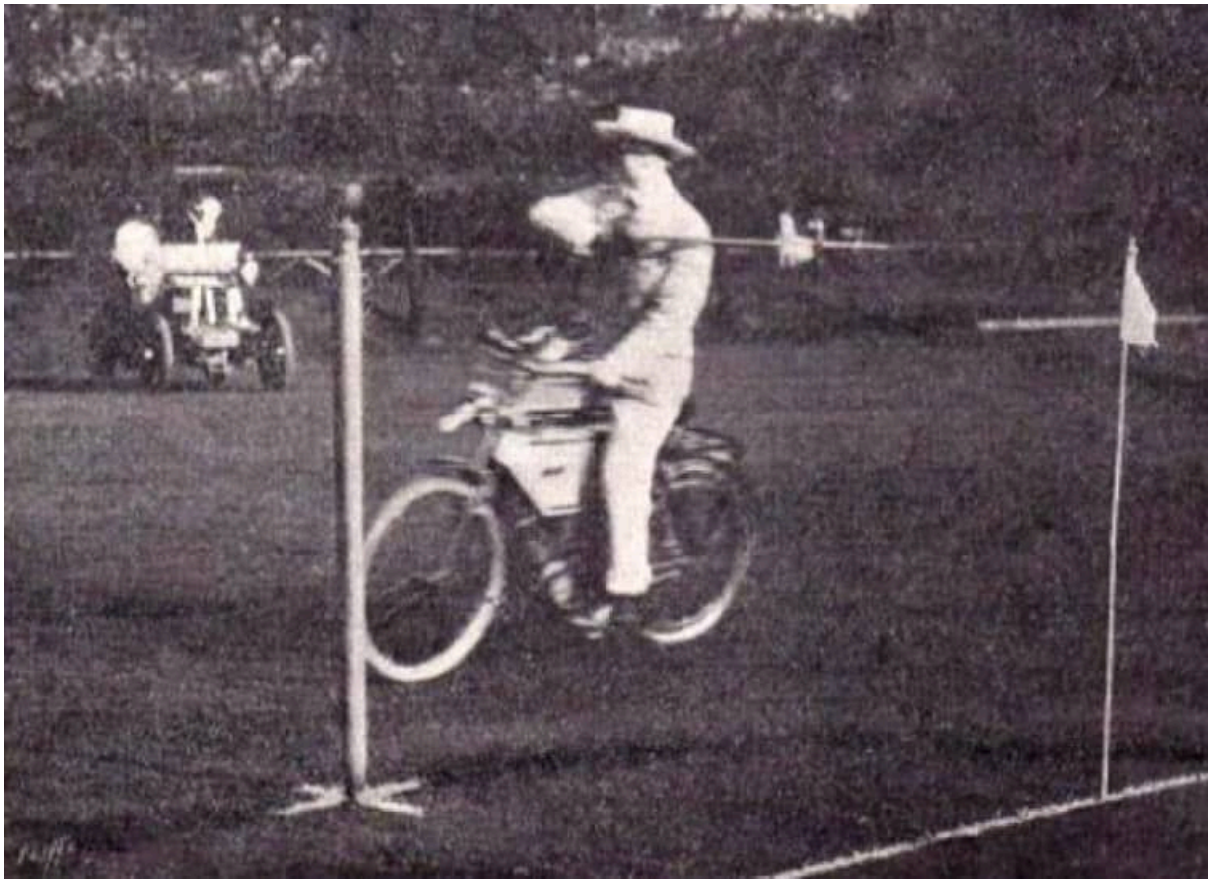
"IN MANYPRESENTDAYmachinesit is impossible to take oī the cylinder without having to remove the whole engine from the frame. Having a loss of compression and suspecting the piston ring slots to be in line we removed the cylinder, found our suspicions correct, and had the cylinder back in half an hour. We thoroughly appreciated not having to dismantle the engine. Accessibility is not the leading feature of marry motor cycles, but is an important one."

"RECENTRIDINGOFA TRIMO,in traīic particularly, has impressed upon us the necessity of having a clutch on such machines. As our engine has a ball bearing on the engineshaft, the clutch will have to be □ðttedontherear wheel. If any motor cyclist who has a clutch so □ðtted would give us his experiences we should esteem it as a favour."

“Mr RW Stevens, the well-known Dublin agent, on a 2½hp Phoenix Racer on which he scored several successes in Ireland.”

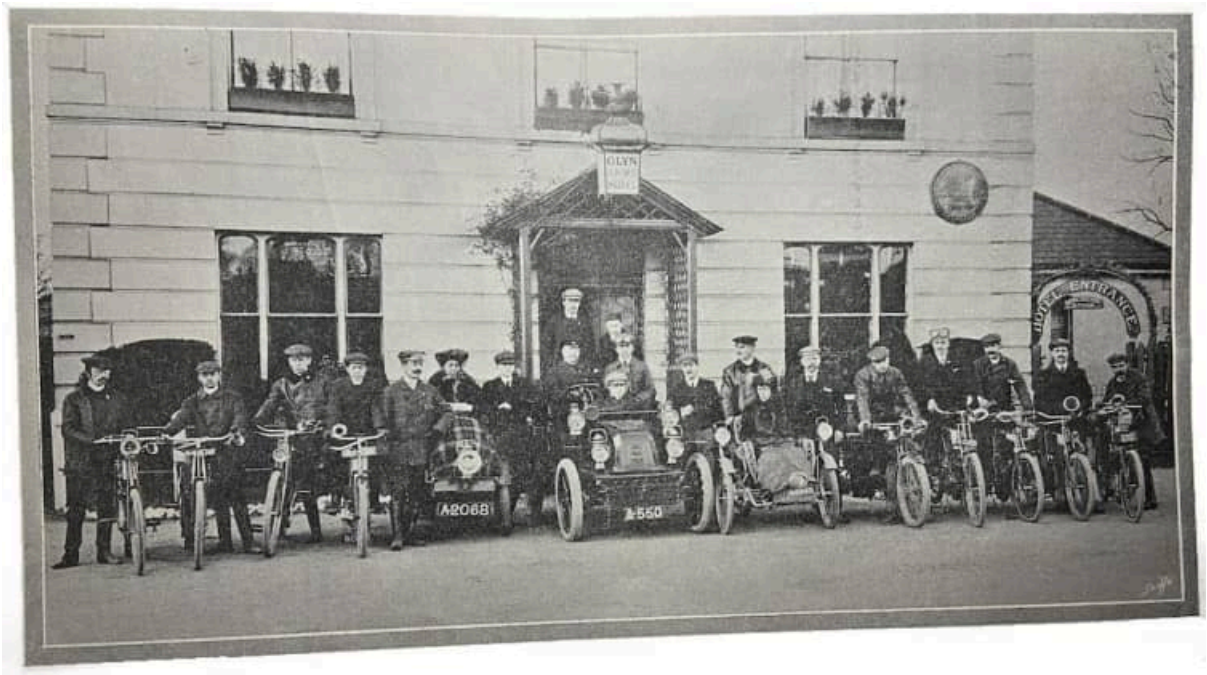
“IT IS CUSTOMARY to form a loop or coil is the petrol or lubricating feed pipes on motor cycles, often to the surprise of the novice, who naturally supposes that better results would be obtained with a straight pipe. The object of these loops is two-fold—□ðrstly to give a certain amount of spring to the pipe, to prevent fracture under vibration; secondly to provide for the pipe being drawn out a little in the event of a breakage, to enable a fresh joint to be made. If the pipe were direct and the end broke oī, it would necessitate a whole new pipe.”

“MOTOR CYCLES WERE TO THE FRONT at the meet of the Derby, Nottingham and Leicester Automobile Clubs at Ashby-de-la-Zouch. The proceedings were not remarkable for excessive sociability, as is frequently the case at inter-club meets. Amongst the machines were Quadrants, including a two-engine tricar, Excelsiors, 2½hp Daw, two-cylinder Garrard with side-car, and 3hp Clarendon Trimo. After the two-engine Quadrant forecar the most interesting machine was a chain-driven Humber □ðtted with Simms high-tension magneto and a Sthenos carburetter. We had a chat with the rider, who informed us that he had made the alterations himself, and that the ignition worked perfectly at all speeds. The magneto was chain-driven, in two steps for convenience, from the half-speed shaft. We saw this machine start up, which it did just as quickly as a machine □ðtted with the ordinary ignition. The inevitable shower fell during the photo-graphical proceedings, but otherwise the weather was, as it should be in April.”



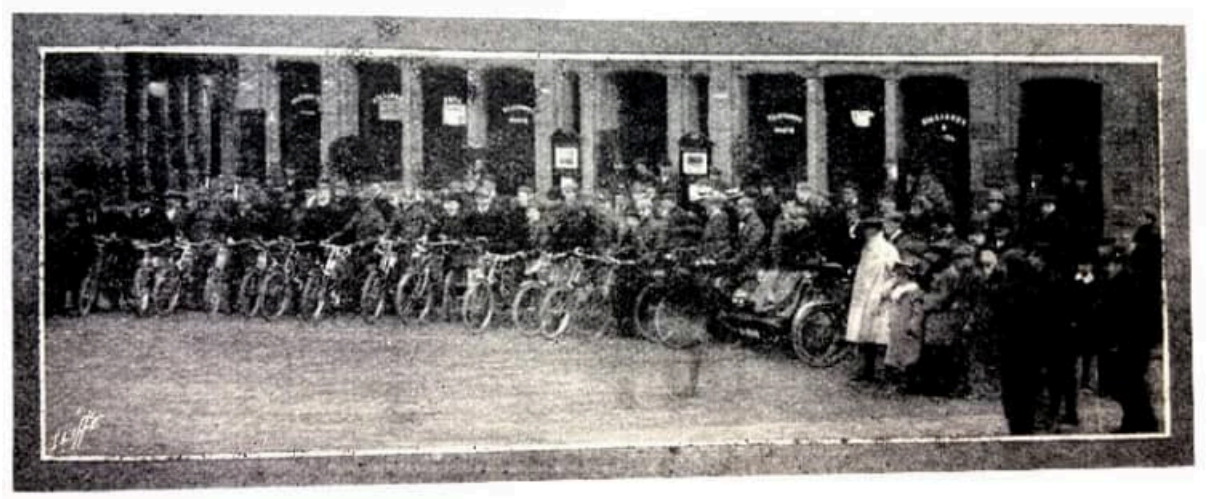
“The United Services Gymkhana at Portsmouth. Striking the Turk’s Head at 20 knots an hour.”

“THE MEMBERSOFTHESouthern Motor Club had a most enjoyable Easter tour. Leaving London by the Bath Road on Friday afternoon, they arrived at Marlborough mid-day on Saturday, where after a short stay they returned home via the ThamesValley, the weather being all that could be desired. Severalmembers joined the tour at various places, including Henley and Marlow. A well arranged □ðxturecardwill be issued in the course of a few days. Among the various □ðxturesare the following: Two 100 miles reliability trials, three hill-climbing contests, two garden parties, and a launch party. The □ðrstreliabilitytrial of 100 miles for motor cycles (single class) will take place on May 7th, the course of which will be decided on shortly.”



“The opening Run. A Group of the Southern MC members photographed outside the Glyn Arms Hotel.”

“THE BIRMINGHAMMOTORCYCLECLUBheld its opening run on Saturday, April 9th, to Worcester, and before starting was photographed outside the club headquarters, the Crown Hotel, Corporation Street. Unfortunately, a heavy downpour of rain prevented many of the members from goingall the way, and the state of the roads on the tram routes of the city resulted in one or two side-slips. If we may be permitted to oīer a little advice, we should recommend a starting-point on the outskirts as being more convenient to the majority concerned. After leaving North□ðeldtheroads were in splendid order, and an enjoyable run was made to the city of glovesand porcelain. An unfortunate accident took place, owing to one of the riders on a tricycle fouling a cart and bringing down the honorary secretary (Mr Bedford), whose Werner suīered a buckled wheel, etc. Mr Max□ðeld,thecollaborateurwith Mr Garrard in the production of the Max□ðeld-Garrardignition,kindlykept his workshop open, and very soon had matters put right. This regrettable contretemps and the bad weather reduced the tea party to thirteen, who sat down at the Bell Hotel.”



“Our illustration of the group includes amongst others the following: MessrsEHHumphries

(captain), LC Davis (vice-captain), JRBedford (secretary), R Tingey, W Bull, WH Goodwin, RW Duke, FW Aston, CG Garrard, G Dennison, CE Simms, VW Heeley, TL Norton, RW Hartley, M Bernsten, JSMantle, AP Max□ðeld,Marriott, GF Cole, DG Sangster, FW Carpenter, CA Bird, FR Gould, and WW Champness."

"ALTHOUGHTHESUNDERLANDAutomobile Association did not organise a Good Friday run, a good many independent motor cyclists braved the stormy weather and cycled out to villages in the locality, Durham city being visited by several. Votaries of the motor cycle are increasing so rapidly that, judging by appearance at least, they bid fair soon to almost equal the numbers of those who keep to the ordinary machine. Local cycle traders are now exhibiting motor cycles more than ever before, and one business man told our correspondent that the demand for these machines quite surprised him, and he is now □ðnding it to his interest to make a speciality of motor cycles, leaving other machines to take second place. To a less degree this sort of thing obtains in many other shops in the district. It is a case of motors, motors everywhere. It is needless to say that dealers welcome the organisation of motor cyclists, as they consider it will result in the growth of the pastime."

"After the activity which has been the most marked characteristic of the Sunderland Automobile Association since its inception, the oīicers and members are relaxing their eīorts somewhat. There is nothing at present to stir them into vigour in regard to oppressive regulations as to speed—they removed this danger at the outset—and their work now is to secure adequate co-operation and smooth working among all the branches throughout the county of Durham. The committee is still receiving numerous applications for membership, and there is reason to believe that ere long the motor cyclists of Sunderland and Durham county generally will have one of the strongest and most eīective unions in the country. A desire exists, however, to spread the cause in the neighbouring county of Northumberland. Hitherto the battles of Northumberland motor cyclists have been fought by the Durham men, but it is felt that they should now □ðnd further strength in themselves."

"WITH THE CYCLE TOURING CLUB (Motor Cycle Section) to Land's End…Brown proved a capital guide for the □ðrst mile; then a cow ran at him, knocking him over. The damage was slight to man and machine—I do not know about the cow—and we were soon tackling the stiī hills to St Buryan. The last is a terrible one, which Brown alone succeeded in climbing, for the cow seemed to have put new life into him…There was another great descent into Truro. Motor bicyclists cannot be too careful in taking these descents and the corresponding ascents in wet weather…It appeared that Brown's accumulator ran out near Penzance. Why such an experienced tourist should come away without a spare accumulator I cannot imagine…The road out of St Austell is vile in the extreme. For nearly three miles we ascended over a dangerously greasy road and through the most desolate, depressing country of the whole tour. We were passing through the tin and copper mine districts and china clay works…At Bugle we got clear of the worst of this terrible stage. We had risen to nearly 800 feet above sea level, and it is a marvel how we succeeded in climbing over such a treacherous surface. It was on this stage Chatterton…had a bad side-slip when he was going nearly 20mph. The muscles of his arm and shoulder were badly bruised, and he was unable to take any further part in the Easter tour…Nearly the whole 21 miles which separate Bodmin from Launceston go through a very wild country. There are no trees, no hedges, no houses, for miles. Small chance of a police trap here, thought I. Shipton evidently thought the same, for his machine just then bounded forward at full legal limit, and I altered my speed also to suit the new conditions. The day was now exceptionally bright, the roads excellent, the wind favourable, the motors running like

clockwork, and the course was clear; you could see for miles. How could motor bicycling possibly be enjoyed under more favourable conditions? We called a halt at the highest point, 1,000ft above the sea, and felt just then that life was indeed worth living…Less than two hours suīiced to polish oī the 42 miles…It wax necessary that I should be back in London on Monday, before lighting-

"Tuning up. (Right) Messrs Sharpe, Chatterton and Brown."

up time…The weather was very unsettled when we got away at 6.30am with the intention of riding to Ilminster—33 miles—for breakfast…After waiting nearly two hours I was obliged to go on alone, and, travelling via Ilchester, Wincanton and Shaftesbury, reached Salisbury in good time for lunch…After one and a quarter hours for rest and refreshment I went on to Basingstoke for tea…A very pleasant day's run was terminated by a run to Richmond Park and round it, then home over Hammersmith Bridge. The whole run from Exeter occupied a shade over 12 hours, including all halts for rest and meals. The machine never required an adjustment whatever, nor, indeed, did it during the whole tour of nearly 700 miles. A few observations on the lessons derived from such a tour as this may not be out of place. Four of the □ðve machines were belt-driven. The chain-driven one, as already noted, had some delay owing to the nut working oī the chain bolt. My only complaint against the belt is on the score of expense of renewal. I have not yet found a belt, however costly, that will carry me on my 3hp machine 3,000 miles. Indeed, 1,000 miles is the average distance. Thus the belt costs far more than the petrol, electricity, and lubricating oil. Is this as it should be? I should very much like to hear of a belt that with ordinary care would last a reasonable distance. Some of the roads in Devon and Cornwall are almost unrideable in wet weather. The side-slip danger is ever present with one when traversing these dangerous parts. It is a marvel to me we came through so well as we did, seeing how many miles of bad and exceptionally greasy road we passed over. All machines should be permanently □ðtted with two accumulators. It is most awkward to know how otherwise to carry a spare one, and the result is one often ventures out on one alone. I am glad to say my 1904 mount is □ðtted with twin accumulators. Previously I have ruined leather cases and clothes when carrying a spare battery. To enjoy motor bicycling at all times of the year and in all parts of the country, some spring fork or frame arrangement is an absolute necessity, It is a crying shame the way cows and horses, etc, are allowed to stray all over the road. Finally, motor cycling is probably the most invigorating outdoor exercise that can be indulged in. The blood gets thoroughly oxygenated in a way that can be attained by no other means at present available."

“A group in front of the Dun Cow Hotel, Dunchurch. (Right)Bridport.”

“THEREAPPEAREDTOBEadecided scarcity of petrol at certain of the South coast resorts during the recent holidays. Severalcycle and motor agents informed us that the stock of lighter spirit was sold out before Sundayin consequence of so many motors being on the road. At Canterbury and Ashford, however, we experienced no diïiculty in securing a supply of Carless, the Canterbury Motor Co having a good supply at their extensive garage.”

“IN OURISSUEOFApril 5th we published a photograph of the motor expert who tests all the Bowden motor cycles. Owing to an error, we unfortunately stated that this gentleman’s name was Mr C Brett, whereas it should have been Mr SJGalley. Mr Galley resides at 62, Lawrence Road, Tottenham, London, N, and makes a speciality of motor cycling, teaches driving, and supplies any make of motor cycle. Our readers may rest assured that Messrs TheEMBowden’s Patents Syndicate would not have handed over the testing of all their motor cycles to him unless they were positively assured that he was a practical man; therefore any motor cyclists in the district who want machines tuning up cannot do better than apply to Mr Galley.”

“COLLIERHASA RACINGMATCHLESSonthe stocks at the present moment on which he ought to accomplish some quick times when he gets the engine and carburetter properly tuned up.”

“JFCRUNDALL,THECHAMPIONcrack of the opening meeting at Canning Town, has a new and powerful Humber racer on the stocks for record work, upon which he anticipates breaking the hour and other records. It is □ðttedwithan engine of nearly 4hp…”(Crundall is pictured at Canning Town in 1903.)

This 4hp Humber, fully equipped for road use, is about to celebrate its centenary.

“IT IS CERTAINLY HIGH TIME that something was done to deal with the dangerous dog nuisance. This question of dogs at large is one that the Motor Union might well take in hand.” [In case you missed it, there’s a feature on this subject in 1903, “Dogs: Shoot, hang or poison?” It’s my favourite Blue ‘Un yarn so do take a gander—Ed.]

“COLLIER’S VICTORY IN the □ðvemile handicap at the recent Auto Cycle Club race meeting was undoubtedly one of the most popular wins of the season. The recent Auto Cycle Club race meeting was undoubtedly one of the most popular wins of the season. He carried oī the opening races in the spring, and certainly wound up the year in good style.”

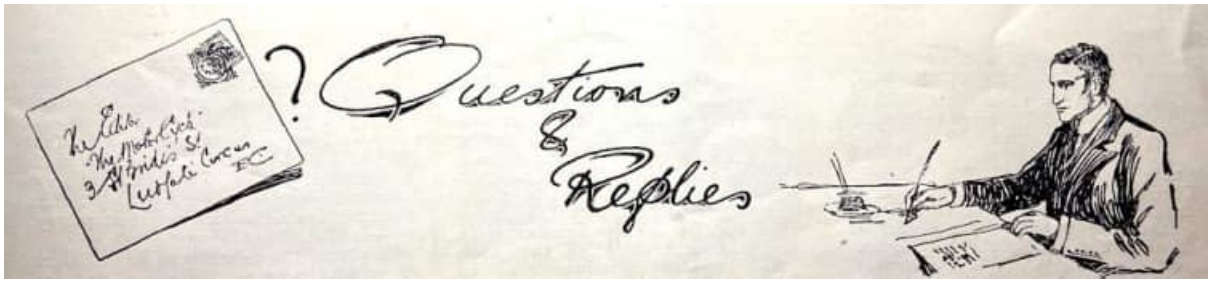
“CLOTHING IS A MOST IMPORTANT question. In the early days of motor cycling, leather coats and trousers were considered essential for winter use. They have, however, gone out of fashion, and although they prevent a cold wind penetrating to the body, they are looked upon as an unhealthy garment, besides giving the rider the appearance of a paid driver. They are consequently eschewed by many. An alternative is provided by several of the large □ðrms who make a speciality of motor cycle clothing. In some cases it takes the form of a very stout cloth, lined inside with thin leather. This has the same drawback, from a health point of view, as the all-leather garment lined inside with wool. Taking everything into consideration, there is nothing better than good stout woollen clothes, with an overcoat which can be removed, made suīiciently thick to prevent the cold penetrating, yet porous enough not to hold the perspiration in the same way that leather clothing does if pedalling has to be resorted to. We know that a great many of our readers who are motor cyclists in the summer take up other pursuits in the winter which are more to their liking, such as football, hockey, etc, but there is still a big army of riders who persistently cling to the favourite hobby, and the above hints may possibly assist them in continuing to ride their machines for the next few months. We can assure them that if they ride through the winter, they will have many surprises. They will see the country under a new aspect, the late autumn providing a diīerent form of scenery altogether from that seen at other seasons. Nothing is more interesting than to note from week to week the diīerent tints

and colours of the declining foliage. A long run out should generally be arranged, and for those who like to meet their fellow riders at tea. a hotel should be □ðxeduponwithinashort distance of home, so that night riding is reduced to a minimum. We have indulged in such rides as these throughout the winter, with considerable bene□ðtandsatisfaction to ourselves and others, and we recommend our readers to do likewise."

"A FEWWEEKSAGOwepublished details about one of the members of the Liverpool Motor Club havingtrouble with a cow near Crewe. We understand that the farmer stated that the tricar ran into the cow, and carried it along for 30 yards. then dropped it, and ran away. Themotor cyclist told the simple, plain truth, pointing out that if the cow had fallen into the forecarriageit would have smashed it to pieces and injured the passenger.However, the farmer won. What with the police proceedings and the action for damages, the motor cyclist is over £20 out of pocket, and for no fault of his own."

"DRIVERSOFMOTORCYCLESfortwo should never forget that, though they may omit to carry split pins in their wallets, there are other articles of almost equal use which ladies never omit to insert in their lovely tresses. A thin hairpin is almost of as much value as gold wire to a motor cyclist in trouble." (Seventyyears later, at Thornton Heath Pond on the A23, a chum replaced a lost split link on his G9 Matchless with a hairgrip scrounged from a passing schoolgirl.)

"MISS MURIELHIND, an enthusiastic motor cyclist, made a long run on a Singermotor bicycle one day last week. Leaving Conway (North Wales) early, she arrived in Coventry long after dark, the driving tyre having punctured no less than six times after lighting-up time. Themechanism of the Singergaveno trouble." No doubt Miss Hind's mount was the latest model with a vertical engine hung from the downtube in place of the company's 'motor wheel'.



"I CONTEMPLATEMAKINGalongtrip, starting early in May. I shall be glad if you or any of the numerous readers of TheMotor Cycle will give me any information or make any suggestion which can be of use on the journey. I propose moting from London to LIverpool, and want to call at Sheïield and Doncaster en route, then boat to New York, motor to Los Angeles, calling at St Louis for exhibition, Salt Lake City, and San Francisco, and along the Paci□ðcCoastto destination. Can you give me the best routes to follow? Do you know if I can buy in London a. cyclists' road map of America? How do their roads compare with ours? Do you know if it will be imperative to pack motor in a case or in crate for the shipping company? Shall I be called upon to pay any 'duty' on the bicycle upon arrival in New York, seeing that it is for my own use only? Will it be possible to buy petrol in American towns? How many miles a day could I average comfortably, allowing, say, eight hours a day actual running? I intend having a new motor bicycle for the journey. What horse-power and which make do you think most suitable? If you think this will be of suïicient interest, I shall feel highly favoured if you will publish it along with a reply. Thankingyou in anticipation for your kindness.
AR STUBBS.

"CAN YOUPLEASEINFORMmeif the Bowden handle control is in your estimation a success, as I have heard it variously criticised, one rider stating that on rough roads the strain of preventing the shifting of position of handle controlling the throttle was so considerable that the vibration conveyedto the wrist and the tension of the grip robbed the system of much that might otherwise be claimed for it.

EHG, Windsor.

TheBowden system is, in our opinion, excellent and likely to become well nigh universal for bicycles. Thecriticism you detail evidently refers to the earlier pattern of handle, which certainly did tend to shift under vibration unless tightly gripped, but this has now been entirely redesigned to give a wider rangeof movement, and will remain in any position independent of hand-grip."

"I AMIN DOUBTASTOwhether to go in for surface or spray carburetter, though I see the latter is becoming more general. I have had a few trips on a borrowed machine with surface carburetter, and cannot conceive how the tiny apparatus of the spray can replace the bulky surface type.

RAS, Nuneaton.

It is still a disputed matter, though the balance is in favour of the spraytype, largely because it is more nearly automatic in action, wastes less petrol, as it does not go stale when left in tank, and engine as a rule starts quicker. On the other hand, its parts are more delicate and liable to choke up if dirt gets into the petrol tank. Thebulk of the surface carburetter is due to the fact that, as its name implies, a large surface of petrol must be exposed to the incoming air, but the actual diīerence is not so much as it appears, because the surface carburetter is also acting as a petrol tank. We should advise any of the better makes of spray, such as Longuemare or FN."

"CAN YOUINFORMMEif there is any motor bicycle on the market, or if it would be practicable to get one built, which would enable me to quickly detach the motor mechanism and transfer it to a small boat, and if so what power motor would you suggestas being best suited to the double purpose? Theboat is 15ft x 4ft beam.

PHS, Marlborough.

We do not think there is anything on the Englishmarket answering your requirements, and quick detachment and replacement of the whole of the working parts would be extremely diīicult to arrange so far as the bicycle is concerned, Moreover, an ordinary air-cooled bicycle motor would soon overheat on launch work. Thepower of the boat would depend on propeller diameter and pitch, on the speed required, and on the class of water it had to run in, as to work in a tidal river would call for much more power than still water. We should not recommend you to proceed with the idea, but 3½ to 4hp should suit such a boat, though that is in excessof what the average rider should have on a motor bicycle."

"I SHALLBEMUCH OBLIGEDif you will give me your experience (if any) of sidecars for motor bicycles, and their advantages over forecars and trailers. Is there any undue strain on the bicycle? Theydo not seem to be taken up much by the public, and one does not see them advertised so much now. What is the reason?

HTM, Bude.

We have not as yet noticed that sidecars are less used or less advertised than formerly. In fact, they seem just as popular as ever. Theadvantages which they have over trailers are as follows: Theyare rigid in grease, so side-slip is done away with; they are also perfectly safe attachments, and do not require more engine power to propel them; they are more sociable than a forecar; the passengeris not exposed to any obstacle a careless driver may run him into; and the engine is not carried in a sheltered position."

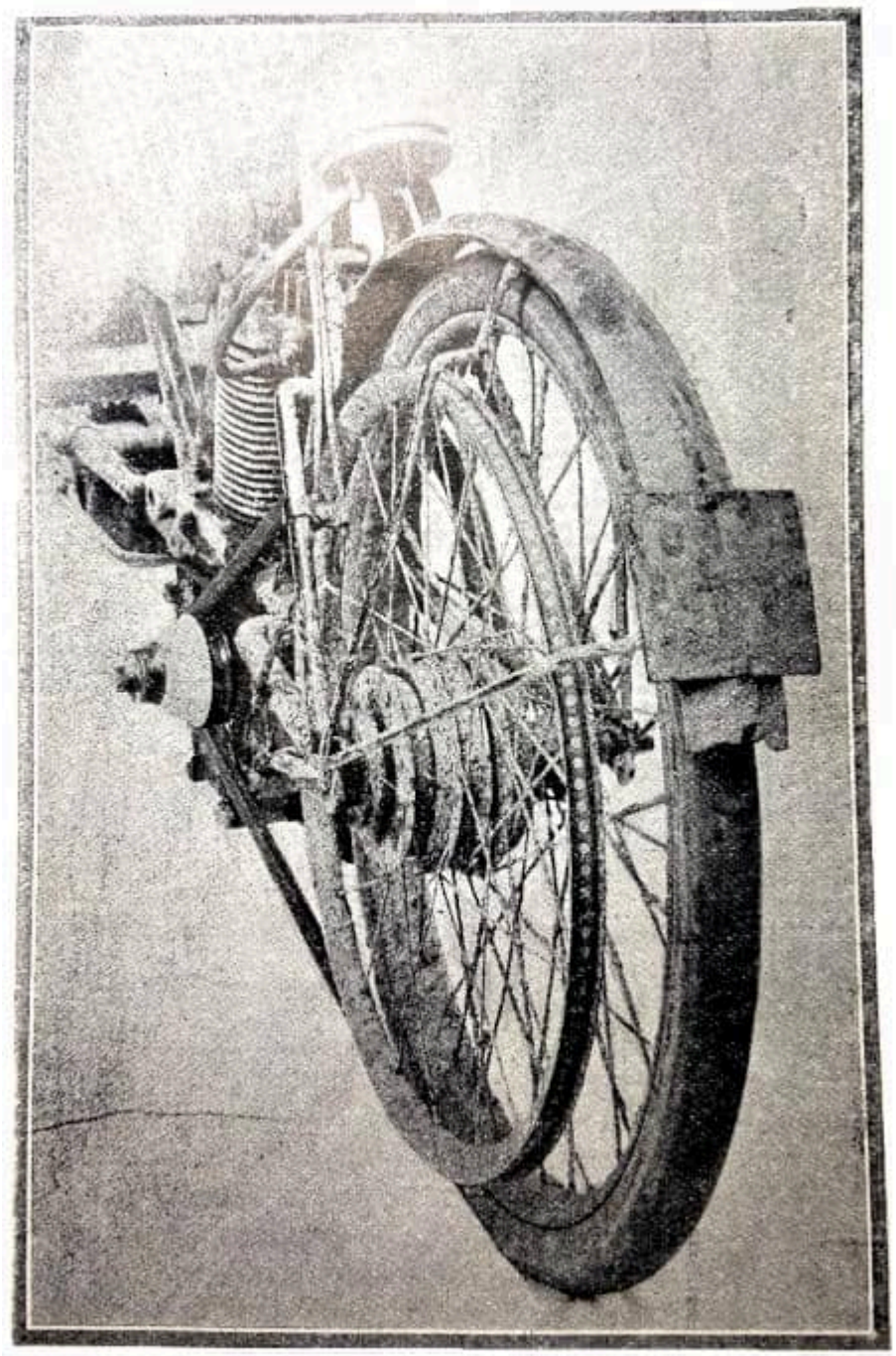
“I HAVE A 3½HP MOTORCYCLE which goes very well, but which I □ðndveryhardwork to start. I am anxious to have a friction clutch □ðtted.Ishouldbe much obliged if you could recommend me a suitable and satisfactory one. The engine has a De Dion type belt pulley.
HBJ, Wandsworth.
We advise you to write to any of those □ðrmswhomakeaspeciality of clutches, giving them full details of your engine, and asking them if they can supply you with one of their clutches.“

“I AM WRITING FOR A FRIEND who wants to know about the motor business as a profession. Will you kindly answer the following questions: (1.) Is it a profession for a gentleman? (2.) What age ought you to begin at? (3.) Have you got to know very much about motors? (4.) Will it be a paying profession? (5.) Can you give me the name of □ðrmswheretheytake in gentlemen?
CHG, Cheltenham.
(1.) Yes,we should consider the motor profession suitable for a gentleman. (2.) It would be preferable to apprentice your friend to one of the best □ðrmsofengineersmakingmotor cars, where a thorough works training would be received, □ðnishingafterwardswitha certain time in the drawing oīices. (3.) It is not necessaryto know the business before being apprenticed, but naturally to become a motor engineer it would be necessary for your friend to be thoroughly acquainted with the mechanism of these machines. (4.) As to whether it will become a paying profession depends entirely on the man’s own capabilities and initiative. (5.) The Mardslay Motor Co, Parkside, Coventry; Daimler Motor Co, Coventry; and the Wolseley Tool and Motor Co, Adderley Park, Birmingham.“

“I AM THINKING OF GOING in for a motor cycle. I realise the most important part is the engine, regarding which I am perfectly ignorant. Thereare so many advertised that I am lost amongst them. My ideas are as follows: Frame, BSA □ðttings,wheels,28in diameter; tyres, 2½in Dunlop or Clincher; belt or chain driven, no idea ; handle-bar control, etc, no idea; engine and power of same, no idea; height of frame, I am 6ft high, and 13st weight. Should be glad of any other points of information that would be of advantageto me.
JC, Maghull.
Your choice as regards frame, □ðttings,wheels,andtyres is perfectly sound. We recommend you to have an engine of about 2½ to 2¾hp of standard make with belt transmission (large V belt). Handle-bar control is a matter of choice, and you could have ft □ðttedafterwardsifyou thought you would like it. We would recommend you to □ðtanexhaustvalvelifter, working independently of the switch, to be attached to the handle-bars. A 24in. frame would be most suitable for you.“

“THERE IS NO DOUBT ABOUT IT—thetwo-speed gear will be a predominant feature in the motor cycle of the future. For the motor bicycle it will be a luxury; for the passenger-carryingthree-wheeler a necessity. My own early experiences with motor tricycles and quads convinced me that a variable speed gear was essential when a small motor had to propel the weight of two people. After struggling with single-geared motor cycles for three years, I found relief in a 3hp Ariel quad with a two-speed gearing, which carried me and an adult passengeron its initial trip from London to Hastings in three hours and a quarter. Without a two-speed gear I could not have done the journey at all, in the heavy state of the roads. But the type of two-speed gear □ðttedtotheAriel quad was not an ideal type for motor cycle purposes; it was too positive and jerky in changing, not having a friction clutch; it gnashed its teeth in a manner painful to the nerves of the rider, who knew that every time the gears scraped they were wearing out the dog clutch. The average life of a dog clutch was under 500 miles, and the dog clutch was both an expensive and an awkward thing to renew. The positive gear, moreover, did not economise the rider’s eīorts at starting, because both machine and engine had to be started by the rider’s

physical eīorts, just as though there had been only a single gear. The modern friction clutch has changed all that. Experience with motor cars has shown how completely eīicacious and satisfactory is the principle of starting the engine with the vehicle at a standstill, by means of a hand crank, and letting the engine gently commence to drive the vehicle by means of a slipping clutch; and the adoption of this practice will mean that the motor cyclist will in the future—nay, he can now—be free from the heartrending eīorts that have been hitherto associated with the starting of a motor cycle by the pedals."—**AJWilson**



"The accompanying photograph is taken from the back of a machine □ðttedwitha new free engine clutch and two-speed gear, the invention of a Mr Jones, hailing from North Wales. This gentleman rode the machine down in the worst of weather to Coventry, where we had the pleasure of examining the gear. An inspection of the photograph will show the terrible state of dirt the machine was in, and

we think this aīords another conclusive proof that a motor cycle is not necessarilya fair weather mount only. We may mention that the machine was assembled with an old 2¾hp Ariel tricycle engine, and from the sound of the motor, together with the owner's eulogistic description of its reliability, it was evidently going well. Truly there are few motor bicycle engines which can boast the quality or life of the earlier patterns as used on the Ariel quads. Another noticeable feature on this machine was that the belt rim was built up like a wheel, and was not attached to the road wheel rim as usual, owing to the fact that when the low speed was in use it was required to over-run the road wheel. This method of building requires very wide □ðangesand strong spokes."

To conclude the year, a selection of contemporary adverts…

MOTOR CYCLES.

2 h.p. Motor Bicycle, complete, good order; £15.—61, Coombe Road, Croydon.

1½ h.p. Minerva, Clincher tyres, good condition; £13 10s.—5, Sundridge Parade, Bromley, Kent.

PHOENIX, 1½ h.p., spare tank, tyre, and parts; £22.—H., 2, Chillingworth Gardens, Strawberry Hill.

1½ h.p. Brown Motor, tank, belt rim, all complete; £4 10s. — Caunt, Portland, Sutton-in-Ashfield.

2 h.p. Minerva, B.S.A. fittings, Palmer, 2in., new last August; what offers?—F. Merritt, 72, Durham Street, Rochdale.

2½ h.p. Noble Motor Bicycle, unused, Palmer tyres, stand; £23.—No. 1,350, *The Motor Cycle* Offices, 3, St. Bride Street, E.C.

3 h.p. Rex, quite new and perfect order, splendid machine; genuine bargain, £29.—F. White, 8, Lupton Street, Kentish Town.

£15.—Minerva, 1½ h.p., F.N. carburetter, new tyres, in running order; by appointment.—L., 38, Denbigh Street, Pimlico, S.W.

ROYAL Enfield, 2 h.p. Minerva, M.O.V., 1903 machine, new condition, stand, Clinchers; £25.—John Linnett, jun., Coventry.

£60.—Motor car, 9 h.p., for sale, seats four, good order; owner going away; trial. — 62, Bath Road, Bedford Park, W.

WERNER, 2¾ h.p., 1903 model, Palmer tyres, McCurd stand, perfect condition; £30.—Staley, 27, Dukes Avenue, Muswell Hill, N.

TRIUMPH Motor Bicycle, 2 h.p. Minerva engine, perfect condition, with accessories; £25.—Warwick, Brighton Villa, Melton Mowbray.

LE Brutus 2 h.p. engine, 27lbs., new, carburetter, silencer, and petrol tank, ready for fixing; £10.—Spencer 49, Southampton Row, Holborn, W.C.

MOTOR CYCLES.

1903 Motor Bicycle, 2½ h.p., A Won Clincher tyres, perfect condition, Longuemare spray carburetter, highest class coil, two accumulators, licensed and numbered, little used, splendid bargain; £25; owner must sell, shortly going to Australia.—Harrison, Chelsea Road, Bath.

CENTAUR, Humber pattern, 2¾ h.p., chain drive, Sampson-Hutchinson on back wheel, self-sealer on front wheel, stand, tools, etc.; owner added several detailed improvements; only ridden 600 miles, condition better than new; on approval; price £40; no offers.—H., 39, Sharples Park, Bolton.

HUMBER Olympia Tandem, special fan-cooled model, 3 h.p., free engine clutch, Dunlop tyres, Sampson-Hutchinson band to driving wheel, practically new and in excellent running order, with tools and spares; cost £90 in November, price £55, or near offer; seen and tried by appointment.—Hubbard, 6, Gray's Inn Place, Gray's Inn.

MINERVA Motor Bicycle, 2¾ h.p., long wheelbase, V belt drive, two powerful brakes, valve lifter, A1 Clincher motor tyres, condition as new, sight feed lubricating, girder head, new end last season; cost £48; must be sold quickly; take £18 18s.; satisfactory reasons for selling.—Motor, 3, Bishopsgate Church Passage, Bishopsgate Street Within, London (City).

1903 Bradbury, 2¾ h.p., with Milford Modele de Luxe side car, 2in. Clincher tyres, Dunlop silencer, Longuemare carburetter, three spare belts, two accumulators, spare pulley to alter gear, spare valves with springs and cotters, extra large toolbag, all accessories, good as new; £37, complete, or motor £29, side car £8.—Nuttall, Hartford Cottage, Werneth, Oldham.

NEARLY New Singer Governess Car, car body never been used, convertible to tricycle, also extra tandem attachment, complete, two spring seat-pillars, collapsible stand, Veeder Trip cyclometer fitted, front wheel fitted with See band, three spare self-sealing inner tubes; cost with extras nearly £140 cash, price £80; good reasons for selling; no fault.—Motor, 20, North Road, St. Helens.

MISCELLANEOUS.

NEW Liberty Side Car, £8 10s.—Child, 1, Ordnance Road, Canning Town.

WANTED, motor tandem or tricar for cash.—Gillman, Stapleford, Notts.

M. and P. Combined Stand, cost 17s. 6d., unused, 10s.—Revell, 58, Oxford Gardens, London.

WANTED, 3½ h.p. tricar, good make, in exchange £60 Collard piano (new), or bicycle only for £40 piano.—Box 1,309, *The Motor Cycle* Offices, Coventry.

ENGINEER, with machinery and power, wishes to manufacture motor parts for the trade or private.—Tew, 70, Boundary Road, Walthamstow.

SMALL Motor Works, sale shop, repairs; unique position; for sale outright, or take partner; interview.—Box 1,348, *The Motor Cycle* Offices, Coventry.

CASTLE Accumulator, 20 a.h., perfect, and leather case, 17s. 6d.; 7ft. 8in. leather V belting, 5s.; Minerva 1904 coil, 18s.—Victor Feeny, Abbotsford, Madeira Road, Streatham, London.

TOURING With a Friend, pleasure doubled, expense halved, by using my flexible towing line and attachments; price 10s.—Milligan, Stowmarket. *Motor Cycle* deposit system. Order early.

ONE Dozen high-class phonos, polished oak cases, recorder and reproducer, plated throughout, 9s. 6d. each; three patent cash alarm tills, 15s. each, cost £2; 40 brass horns, 24in., 2s.; two gross burning oils, 1s. tins, 24s. gross; two gross Glasmi mantles, 24s. gross.—143, Roman Road, London, E.

2¼ h.p. Rex, new engine, Lycett non-slipping pulley, F.N. spray, throttle, back seat attachment, splendid condition; £24.—Gandy, Acton Bridge, Northwich.

ARIEL, 2¾ h.p., ridden 700 miles, all spares and extras, everything perfect condition; £30; trial by appointment.—Morton Stuart, Fairyhill, Weybridge.

WERNER, 1¾ h.p., F.D., in perfect running order, and good condition; can be tried; will sell cheap, best offer.—38, Dale Road, Kentish Town, N.W.

EXCELSIOR, 2¾h.p., M.M.C., trembler coil, wipe contact, stand-carrier, not soiled; trial here by appointment; price £45.—John Edney, Quay Street, Fareham.

COMPLETE Parts for a stationary petrol engine, nearly finished, bore 3¾in. by 5in., water-cooled; will sell cheap; best offer.—38, Dale Road, Kentish Town, N.W.

ARIEL, 2¾ h.p., new condition, spray carburetter, Bowden valve lifter, Lanconia belt, horn, lamps, accessories; £24.—Forbes, 56, Elgin Mansions, Maida Vale, W.

F.N., 2 h.p., cost £43 last August, £28; ditto, special additions, cost £50 last October, 50 guineas; nearest offers; under 500 miles.—Beta, St. John's, Middlesbrough.

QUADRANT, 2 h.p. Minerva engine, Clincher A Won tyres, acetylene lamp, stand, and spares, in good working order; £20.—Phillips, 11, Warwick Street, Worthing.

3 h.p. Motor Cycle, new last November, little used, in perfect condition, tyres unblemished; a bargain, £29.—E.S.S., Arborfield, Wimbledon Park; must sell to best offer.

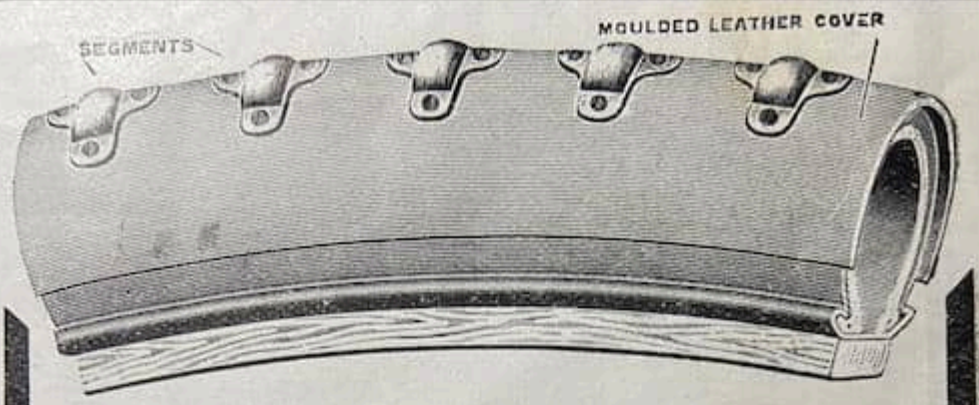
2¾ h.p. King, Kelecom engine, spray carburetter, trembler coil; nearest offer to £18.—8, Criterion Mews, Fairbridge Road, Holloway Road, N., or R. White, 2, Pancras Lane, Queen Street, E.C.

REX, 3 h.p., as new, also Rex upholstered trailer, together or separate; list price with extras nearly £70, take £42.—Taylor, 21, Grosvenor Road, Whalley Range, Manchester.

2¾ h.p. Royal Sovereign, spare valves, belt, etc., Main-Hilton stand, Bowden exhaust lift, Dunlops, reinforced back; price £18; seen, 336, Euston Road.—May, Hillsborough, Windsor.

3¼ h.p. Rex, delivered from Agricultural Hall show, not taken out of crate owing to unforeseen circumstances, will accept £45 for immediate sale.—Ivy Dene, Bicester Road, Aylesbury.

B.K. and Co. Machine, 2¾ h.p., Minerva engine, perfect condition, practically new, bought in December last; price £34; trial by appointment.—6, Thyra Grove, North Finchley, London, N.



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Something REALLY practical.

SAFE AND SOUND

are those tyres which are fitted with

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For Motor Cars. **NON-SKID** **For Motor Cycles.**

(PATENT.)

SAFE AGAINST SIDE-SLIP AND PUNCTURES.

An adaption of the famous original non-skidding tyre of 1894 (Edwards's Patent) for ALL pneumatics.

Telegram from Mr. FRANK SHORLAND, London Manager, Raleigh Cycle Co.

Edwards's Non-skid Syndicate, Agricultural Hall, London. Have just completed most severe test with Edwards's Non-skids, and have found it impossible to slip under most trying circumstances, even on tram lines. Kindly place order immediately for another pair for friend's car. SHORLAND.

Can be fitted to any tyre, new or second-hand.

Descriptive Illustrated Circular free.

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An

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Engine

which is of the finest possible workmanship, design and finish. The F.N. Engine is absolutely the very best obtainable.

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TO BE UP-TO-DATE IN EVERY DETAIL ALL MOTOR CYCLES SHOULD BE FITTED WITH

The BOWDEN SYSTEM of HANDLE-BAR CONTROL,

by which the rider can control Throttle, Advance Spark, Valve Lifter, Switch, and Brakes without having to remove the hands from the handle-bars, which ensures greater safety and comfort.

BOWDEN BRAKES,

the most reliable and efficient in the world.

The BOWDEN SYSTEM of CHAIN DRIVE and FRICTION CLUTCH,

which gives free engine at will, is controlled by one wire, and is self adjusting.

Write for descriptive catalogue of Levers, Shoes, complete Brakes, Valve Lifters, and all the latest advances in the construction of Motor Cycles, post free on application to

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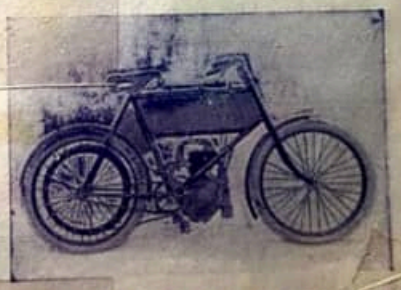
2¾ H.P.
MOTOR CYCLE

is lighter, stronger, and of the highest grade because it is made from solid steel forgings and nickel steel tubing, therefore superior to others sold at £20 more. It is the fastest and most reliable made.

Price £39 net.

VALUABLE AGENCY.

THE HIGHEST GRADE MOTOR CYCLE IN THE WORLD.



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48, Wells Street, Oxford Street,
LONDON.

102, GRAFTON STREET, DUBLIN.

3½ H.P.

Mechanical Inlet,
Detachable
Seatings,

suitable for

B.S.A.,
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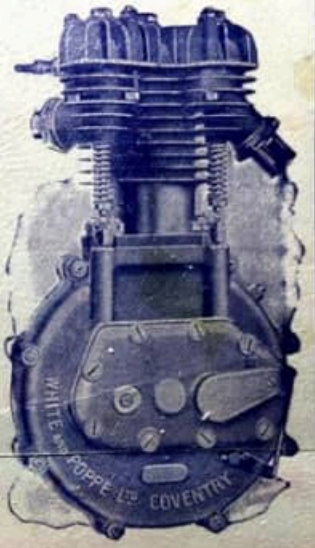
Components.
Wipe Contact.



Water-cooled head if required.

WRITE FOR OUR 1904 LISTS.

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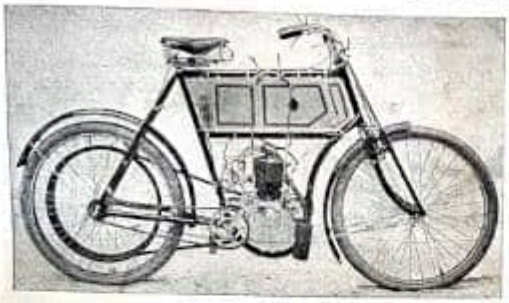
LEAD THE WAY FOR MOTOR NOVELTIES.

3 h.p. "Gamage" Motor Cycle £35



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GOGGLES. Largest selection in the trade.

THE NEW PATENT FOLDING GOGGLES.

Price, 7/6 in case. Postage 2d.

Comfortable to wear, impossible or dust to get to the eyes.

METAL FRAME RACING GOGGLE.

Price 3/6. Postage 2d.

Protect your LICENCE.

Folding Pocket Cases to take motor driving licence, Head clear adjustable badge. Licence is protected from all dirt and grease, convenient shape for pocket, easily read. Now in Stock to St. L.C.C. Bosses, any size to order in three days. Names stamped in gold on case, 3d. extra for every five letters.

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Largest variety in London. All newest patterns and lowest prices. Linens, Lasts, Laces, Connecting, etc. Prices from 1/- feet.

PLUGS.

Genuine De Dion	2/6
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Clip	2/3
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MOTOR CYCLE HORNS.

$9\frac{3}{4} \times 5\frac{1}{2}$ .. 4/9. $8\frac{1}{2} \times 4\frac{1}{2}$ .. 3/6

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French Morocco	2/
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Patent Mud Splasher

For Motor Cycles.

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An absolute necessity

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A. W. GAMAGE, Ltd.,

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2¾ h.p.

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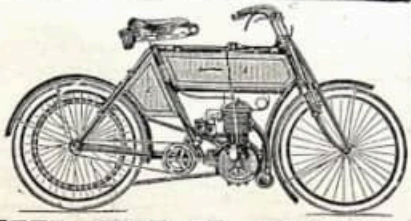

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THE WORLD'S BEST VALUE.

1904 Genuine Minerva Engine. M.O. Valves. Longuemare Carburetter, highest class coil, two accumulators—free engine (£3 15s. extra)

Write for Booklet. 2 h.p., 2¾ h.p., 3½ h.p.

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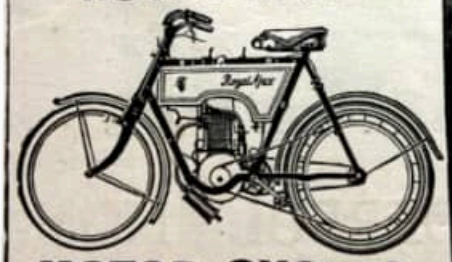

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38 Guineas. **2½ h.p.**

Send for Free Price List.

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MOTOR CYCLES.

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In consequence of the recent fire at the ORMONDE MOTOR CO.'S DEPOT, the Stock (more or less damaged) will be

SOLD BY AUCTION,

ON WEDNESDAY, APRIL 27th,

BY

MESSRS. JAS. LEWIS & CO.

The stock comprises about

60 MOTOR CYCLES,

New and second-hand, of best makes

SIDE CARS, FORECARRIAGES, etc.

ORDINARY CYCLES, TYRES, and SUNDRIES (Cycle and Motor).

Also several MOTOR CARS, including

GRAND 15 h.p. MORS CAR,

With COVERED TONNEAU,

Well-fitted and all complete; cost over £1,100.

PRUNEL CAR, 8 h.p. DE DION ENGINE,

TONNEAU BODY, good order, etc.

Catalogues from, and lots on view four days prior, and day of sale, at

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Catalogues also from Messrs. JAS. LEWIS & Co., Auctioneers and Fire Assessors, 6, Southampton Buildings, W.C.

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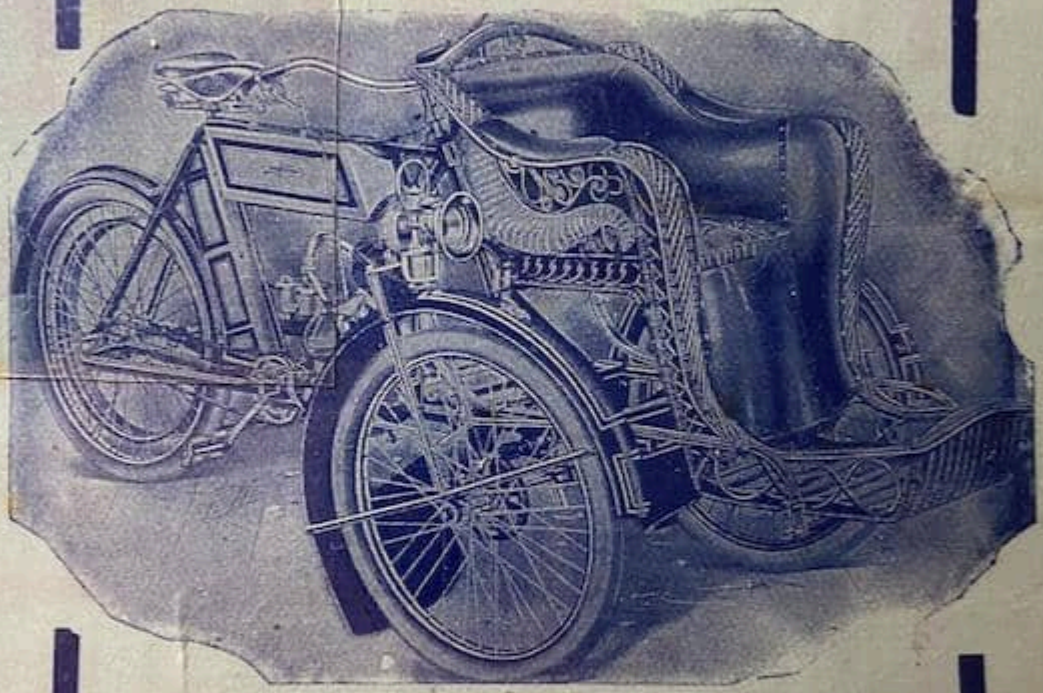

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"The Motor and the Maid."

All about the New Competition for a 3 h.p. Motor Bicycle.

The competition is based upon the incidents which continually arise in the course of a very interesting story entitled "The Motor and the Maid," the first instalment of which will be published in our Special Spring Issue, next week.

The tale will be published in about six instalments,

and in the narration of the adventures and experiences of the characters a number of problems are worked, and the reader who is most successful in solving these will be the winner. Each week, on this page, questions will be asked about the events narrated in the tale.

THESE QUESTIONS WILL NOT BE OF AN ABSTRUSE OR HIGHLY TECHNICAL NATURE, AND ANYONE POSSESSED OF AVERAGE ABILITY AND SOME KNOWLEDGE OF MOTOR CYCLING WILL BE ABLE TO ANSWER THEM.

THE QUESTIONS ARE NOT HOPELESSLY STIFF OR ABSURDLY EASY, AND THE ANSWERING OF THEM WILL PROVIDE A DELIGHTFUL PASTIME.

The conditions are simple:

(1) The replies must be sent in each week before the date of the succeeding issue, on a form which will be given on this page.

(2) They must be enclosed in an envelope addressed Competition Editor, "The Motor Cycle," 3, St. Bride Street, E.C.

(3) The winner will be the reader who answers the greatest number of questions correctly.

(4) The Competition Editor's judgment to be final.

The winner will be announced as soon as possible after the conclusion of the story.

The competition is open to any reader, the only exception being members of "The Motor Cycle" staff and contributors to "The Motor Cycle."

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MAKE { your automobile run silently,
your motor cycle run silently,
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By adopting the **"OSSANT FRERES SILENCER"** *(Patented)*

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Motor cycles are distinguished by advanced design, practical fitness, reliability, lightness, and exquisite finish.

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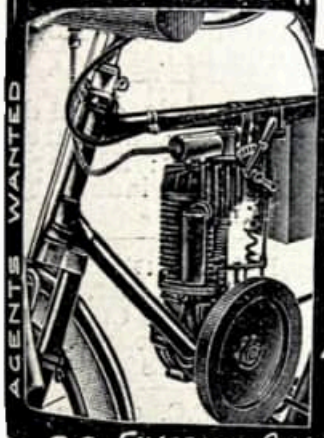

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PERFECTLY SIMPLE.

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2-2½ single-cylinder and 5 h.p. twin-cylinder

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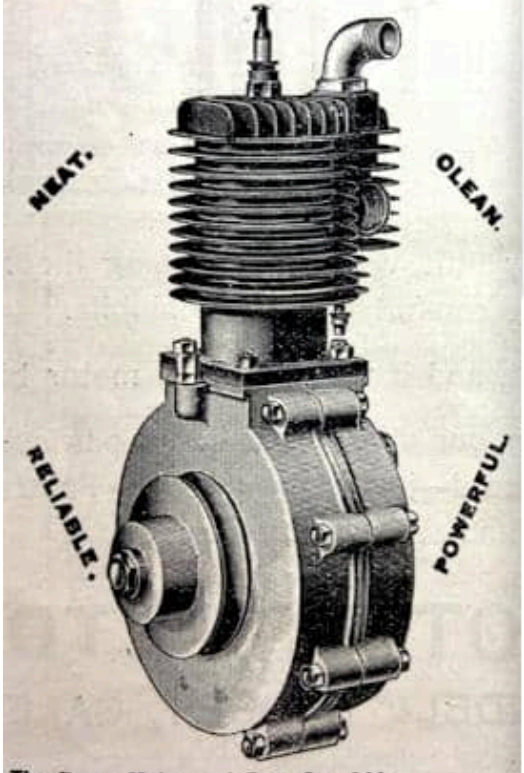

The Ryper Motor and Eng. Co., Ltd.,
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2¾ H.P. | 46 Guineas

THE Kynoch Motor Bicycles

MADE LIKE AMMUNITION.
British throughout

CHAIN DRIVEN.

M.O.V.

Half compression cam for easy starting.

Send for particulars, and we will send you name of Agent where machines may be seen.

TRADE ONLY.

KYNOCH Ltd.,
Agents Wanted. James Street, Haymarket, LONDON, S.W.
Works: Birmingham.

CYCLE SPEED INDICATOR.

PRICE ONE GUINEA.

V Belting 1/- per foot.

Sparking Plugs, 1/3.

Voltmeters.

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"VAPP" CARBURETTERS, 32/6.

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NO MORE SIDE-SLIPS or PUNCTURES

The Wilkinson Non-Skidding Tread is the only appliance which absolutely prevents side-slip, and protects the tyre from cuts and punctures.

Extract of letter from one of our agents, February 8th, 1904.

"I have given the 'Wilkinson Non-slipping Tread,' on my motor bicycle, the severest test in all weather, and on all kinds of roads (wood paving with tram lines, etc.), and I find, as you said, there is not the slightest tendency to side-slip. I must say that I am very grateful to you for recommending these tyres to me, for previous to this I was always in great fear of a cropper; but now I find motor cycling a pleasure, as the strain on the nerves, caused by fear of side-slip, is non-existent. Make what use of this you like in recommending the tyres, for mine has been, and is, a complete success."

Write for full particulars and quotations, giving diameter and size of tyre, and weight of vehicle, to

The Wilkinson Tyre & Tread Co., Ltd.,
Chapel Hill Mill,
HUDDERSFIELD.

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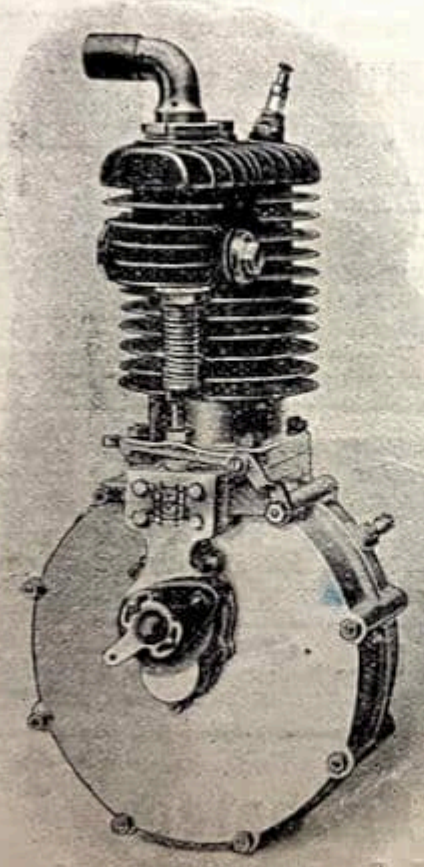

Genuinely made.

Unequalled for Quality, Reliability, Finish.

Fully tested.

Sizes, both Air and Water-cooled.

2½ h.p.
76 x 85 mm.
A.O.V.

3 h.p.
82 x 89 mm.
M.O.V.

3½ h.p.
89 x 95 mm.
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Clips can be supplied to suit Standard Cycle Fittings.

We shall be pleased to send you our List.

Telephone 462.

The Stevens Motor Manufacturing Co.,
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PRETORIA TO JOHANNESBURG.

"'**VINDEC SPECIAL**' Motor Cycle wins **GRAND SILVER CHALLENGE CUP.** Record time beaten by 16 minutes by Murkett. Chater on a '**VINDEC SPECIAL**' second man in record time. Every well-known make of Motor Cycle represented. Congratulations upon great achievement.'"

So telegraph Shimwell Bros., Agents for the Transvaal and Natal.

"**VINDEC SPECIALS**" have justly earned their reputation. They are both strong and speedy.

Illustrated Descriptive Booklet C post free upon request.

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HILLS ! HILLS !! HILLS !!!

The *Chase* 2¾ h.p. (Chase Engine)

Takes WESTERHAM HILL at EXPRESS RAILWAY SPEED.

The Dashwood Hill Climb
16/4/04,
was won by the 2¾ h.p.
CHASE,
at **40 miles per hour.**
Time 59⅖ secs. Next best time 2 min. 1⅕ secs.

ALL POWERS.
2½ h.p. to 6 h.p.

The wonderful performances and times made recently by the 2¾ h.p. CHASE have created an impression in some folks' minds that the machines used were in some way special.

We positively state such is not the case, and that all the above performances were accomplished on standard machines, with standard engines from stock, carburettors, etc., etc., and are free to inspection and trial.

Photo of Mr A. A. Chase, winning the great Westerham Hill Match, 3/8/04, Chase v. Jap, at an average speed of 31 miles per hour.

The Three Auto Cycle Club's Hill Climbs,
14/5/04, were won by
CHASE
machines, including Forecar event.

WEIGHTS:
110 to 150 lbs.

THE FLEXO BELT.

CHASE MOTORS,

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Hincaster Hall,
Milnthorpe,
Westmoreland.
Sept. 7th, '04.

Minerva Motor Co.,
40, Holborn Viaduct,
London.

Dear Sirs,

I feel it my duty to write and tell you about my 2¾ motor bike which I purchased in the Spring of this year, and which has behaved so well. It has now run about 2,400 miles, and I may say that I have never been stopped on the road with it since I got it. The only thing I have had broken was a pedal, which was done by a side-slip. In June I took a friend with me in a trailer to London—we went 220 miles the first day by seven o'clock in the evening, started at six in the morning—thus you will see we averaged seventeen miles an hour all through, including stops for refreshments. This I think was a very good performance, the only cost being 2 gall. petrol, 2/6, besides our refreshments. No matter when I go to it, I can start it immediately, whether it has been standing a day or a week. I have taken nearly all hills about here with trailer and passenger. I am using the same Minerva belt which came on the machine, and it is hardly any worse for what it has done; the same Minerva mica plug, also trembler blade and platinum screw.

In conclusion, I may say that if every motorist had an engine as reliable as my

MINERVA,

he would have no cause to grumble.

Yours truly,
RICHARD PRICKETT

THE KYNOCH MOTOR CYCLE.

2¾ H.P.

Owing to the excellence of design and the positive chain drive the KYNOCH 2¾ h.p. engine will carry rider anywhere without pedalling, and if required pull a trailer with passenger. It is the acme of British workmanship and made in our own factories. It is fitted with special half compression cam, ensuring easy starting.

If you will please send for particulars we will send address of the nearest agent where the KYNOCH motor cycle may be seen and tried.

Agents wanted everywhere.

Colonial enquiries specially invited.

Engines and sets supplied to the trade for assembling.

TRADE ONLY—

KYNOCH, Ltd.,
James Street, Haymarket,
LONDON, S.W.

Works: BIRMINGHAM.

46 Guineas.

THE FAVOURITE BAT

Writing of the pacing in the

WORLD'S 100 Kilometres CHAMPIONSHIPS

Expertus, in "The Clarion," says:

"The favourite of the lot was the No. I BAT, which I should take to be of 3½ h.p., and this put in a splendid amount of good work. . . No doubt about it, No. I was a beauty. . . So much to the credit of the BAT and its builders."

Have you seen the BAT '4 KAR'?

Built by the builders of the BAT. It, also, is a beauty, and being fitted with the famous **Bat Spring Frame**, provides luxurious travelling for both driver and passenger.

Can we send you particulars, and arrange for a free trial?

Bat Motor Mfg. Co., Ltd., Head Office and Works: **53, Beckenham Rd., Penge, London, S.E.**

Temporary West End Showrooms where "BATS" can be seen and tried: 321, OXFORD STREET, LONDON, W.

WARNING. Buyers and sellers of infringements will be immediately proceeded against. Patented United Kingdom, America, and Continent.

THE "WATAWATA" BELT (Regd.)

(BOOTH'S PATENT)

RELIABILITY TRIALS.

Messrs. The Lagonda Motor Co., Ltd., Staines, write: Aug. 25th, 1904.

"At the instance of Messrs. Brooke Bros. we fitted one of your ⅜in. belts to our Motor Bicycle for the trials last week, and we take the greatest pleasure in informing you that without once cutting the belt the machine made a perfect run through two days' mud and rain, and the entire 1000 miles without a slip of the belt even on the steepest hills, taking Marlboro' Hill after 930 miles at 30 miles an hour. We feel sure that belt troubles are now a thing of the past, even with a 4½ h.p. motor, since the **WATAWATA** has come."

Mr. Charles Potter, Leeds, writes: August 21st, 1904.

"The two belts supplied to me by you for driving my 3½ h.p. Riley Motor Cycle in the trials of the A.C.C. last week have given me every satisfaction. During the whole day of Wednesday last in a pouring rain, such as I have never ridden in before, from Stamford to Scarborough, 147¾ miles, the belt running was never touched but ran without slipping in the least. I have never used a belt before that would do as this has done. I wish you every success."

Messrs. John A. Prestwich & Co. write: September 9th, 1904.

"Please forward us four 8ft. lengths of your ⅜in. **'WATAWATA'** belt for use in the International Motor Cycle Race.

"You may be interested to learn that we used one of your ⅜in. belts in the hill-climbing match on Westerham, and also through the 1000 miles' trial, and it gave entire satisfaction.

"In using these belts, we consider that belt troubles are a thing of the past. Even when new they can be ridden for several hundred miles without being shortened.

"Wishing you continued success."

FOR FULL PARTICULARS APPLY TO THE SOLE MAKERS:

O. & W. ORMEROD, Ltd., ROCHDALE.

(Established 1796.)

TERMS: Cash with order.

No. 1, $\frac{5}{8} \times \frac{3}{8}$	No. 2, $\frac{3}{4} \times \frac{1}{2}$	No. 3, $\frac{7}{8} \times \frac{5}{8}$
2/6 per ft.	**2/11** per ft.	**3/4** per ft.

Illustrated pamphlets free upon application.

LONDON AGENTS: BROOKE BROS., 13, Stamford Brook Mansions, Ravenscourt Park, W.

"JAP"

SUCCESS IN - - RELIABILITY TRIALS.

Our machine, fitted with 3 h.p. engine, went through this very severe test without the slightest trouble or defect.

NEWSPAPER COMMENTS ON HILL-CLIMB OUTSIDE MARLBOROUGH.

SPORTSMAN, 22nd August.

The feature of the hill-climb was UNDOUBTEDLY THE SPLENDID ASCENT OF LOWE ON THE **"JAP."**

THE PEOPLE, 21st August.

THE . . .

"JAP"

WENT UP SPLENDIDLY.

DAILY NEWS, 22nd August.

About a mile out of Marlborough, a long ascent of 1,000 yards, average gradient 1 in 20, with a steep portion 1 in 10, and the descent on the other side, were taken advantage of for a hill-climb and brake test respectively. THE SPLENDID ASCENT OF LOWE ON THE **"JAP"** WAS THE FEATURE OF THE HILL-CLIMB.

The **"JAP"** 3½ h.p. motor is the most successful air-cooled Engine for Forecarriages or Cycles.

JOHN A. PRESTWICH & Co., Tottenham, N.

RELIABILITY.

The "Chicago Rawhide" Belt was used by several of the successful competitors in the

1,000 MILES TRIALS,

giving absolute freedom from belt troubles.

Sole manufacturers of the only genuine

"RAWHIDE."

V shaped, flat and twist. Only genuine if stamped "Chicago Rawhide."

'CHICAGO RAWHIDE' MOTOR CYCLE BELTING.

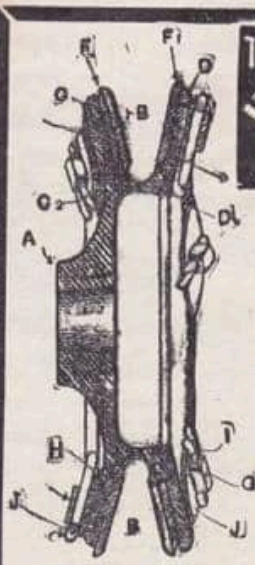
Hundreds of test'monia's.

The Noble Motor Co write: Dear Sirs,—It will no doubt interest you to know that the belts used on our machines in the 1,000 miles reliability trials were of your manufacture, and we are pleased to state that, even after this severe test, they are still good for a like distance. The Trimo, which was fitted with one of our 4 h.p. engines, also used one of your ¾in. belts, and although disqualified through an accident, completed 900 miles. Considering the strain on the belt with an engine of this power, it speaks well for the belting of your manufacture. Yours faithfully, The Noble Motor Mfg. Co.

Obtainable at all agents or makers, or the sole manufacturers,

The BRITISH Chicago Rawhide Mfg. Co., Ltd.

Head Office and Works: Beaufort Road Birkenhead; 6, Dowgate Hill, London, or 41, Corporation Street, Manchester.



THE HOWARD-FITCH PULLEY

Will be exhibited at STANLEY SHOW.

Your Belt absolutely cannot slip with this Pulley.

Pulleys for most standard engines.

Any other pattern supplied in two weeks, without extra charge, if you send along your own pulley, which will be returned day following receipt,

Perfect Fit Guaranteed.

FOR V BELTS.

Mr. Gaydon, Cycle and Motor Stores, 20, 21 & 22, Park Street, Croydon, on 29th Aug., 1904, says: "My customer **is more than satisfied** in the manner **the Howard-Fitch Pulley** works—in fact, **thinks it is wonderful.** He says he has ridden it with **belt so loose that it has jolted off; and this without slipping."**

TAMWORTH. HOWARD FITCH CO.

THE UNIVERSAL SILENCER

SHARPE'S PATENT.

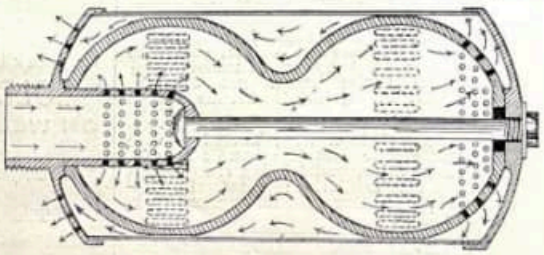
WILL MAKE YOUR MOTOR CYCLE

AS SILENT AS A PUSH BIKE.

ORIGINAL and SCIENTIFIC.

Cars and Cycles fitted under the Personal Supervision of the Inventor.

Sole Manufacturers:



The Imre Engineering Co.,

48, Tottenham Street, LONDON, W.

Tel. 844, MAYFAIR.

PRINCEPS

Motor Cycles, fitted with 1¾ h.p. and 2 h.p. Engines.

Some absolutely NEW GENUINE BARGAINS, from **£10** to **£20** each.

J. E. HUTTON, Ltd., 81, Shaftesbury Avenue, London, W.

FACT FACT FACT FACT FACT FACT

The 'WATAWATA' Belt

(Booth's Patent)

IS

Absolutely Unrivalled.

SOLE MAKERS—

O. & W. ORMEROD, LTD., ROCHDALE.

Write for free illustrated pamphlet.

'Morris' Motor Bicycle

2¾ h.p. M.M.C. engine, registered design frame, patent carburetter, long belt drive or chain drive with friction clutch, giving free engine.

DISQUALIFIED in Automobile Club's Anniversary run to Oxford, November, 1902, for **exceeding** time limit on a pouring wet day.

SOLE MANUFACTURERS—

OXFORD AUTOMOBILE & CYCLE AGENCY

16, George Street, Oxford.

GAS

is all very well in its place—in the engine for instance—but it is entirely out of place in the commercial world.

Our claim that the

MOTOR BAT CYCLE

is Best After Tests is based upon the bedrock of solid facts.

Reliability—The Bat gained highest honours in the 1,000 Miles Reliability Trials.

Hill Climbing—The Two Gold Medals were secured by the same "Bat" in the Classic Catford Hill Climb.

Records—The Flying Bat holds more world's records than all other makes put together.

It is thus clearly and indisputably shown that for Reliability, Hill Climbing, or Speed, the Bat is Best After Tests.

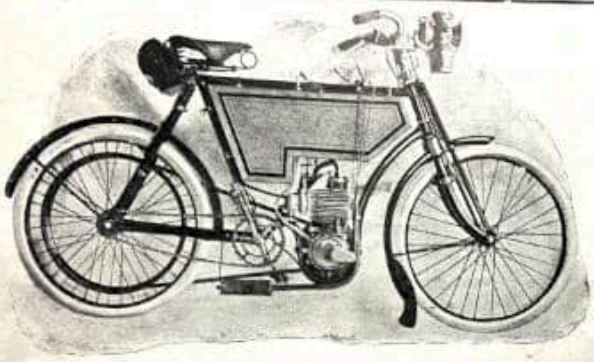
Get to know all about the Bat by writing for the artistic brochure, post free.

The Bat Motor Manufacturing Co., Ltd.

Offices and Showrooms: 53, Beckenham Road, Penge, London, S.E.

Works: Kingswood Road, Penge. Paris: Depot 6, Cite Trevise.

On receipt of postcard, name and address of nearest agent will be forwarded.



—— A SPECIAL LINE ——

THE CALVERT "POPULAR"

3¼ H.P. MOTOR CYCLE.

£30. £30 £30

WRITE FOR PARTICULARS. PROMPT DELIVERY.

We have a large and varied number of types of water-cooled cylinders, and are prepared to quote for converting any make of machine to water-cooled.

62, Stoke Newington Rd., N.

SPECIFY FOR YOUR NEW MOUNT

THE FULLER "SYNTONIC" HIGH-SPEED COIL

(PATENT).

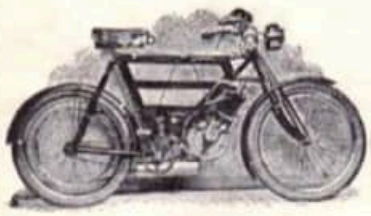
MADE IN ALL THE USUAL SIZES.

This Coil works on an entirely new principle, and is capable of being "timed up" to give **20,000 vibrations per minute.** The spark is practically **continuous,** and no amount of jolting will upset its rhythmic vibration. The current consumption is half an ampère, and the **spark is intensely hot.**

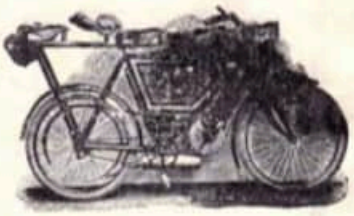
"One of the most interesting novelties at the show."—*The Motor Cycle*, March 29th, 1904.

FURTHER PARTICULARS FROM THE PATENTEES AND SOLE MANUFACTURERS—

JNO. C. FULLER & SON, Woodland Works, Wick Lane, **Bow, London, E.**



Matchless Motors



TO THE FRONT AGAIN.

There is no doubt that they are what their name infers, **Matchless,** for their match could not be found at the **Auto Cycle Club's Annual Meeting** on September 24th, when they succeeded in winning the **"Motor Car Journal" Challenge Cup and Gold Medal** for the five miles handicap **from scratch,** and also the **"Automotor" Challenge Cup and Gold Medal** for the One Mile Time Trial, also coming in second in the one hour's race, thereby gaining a silver medal.

Price of the MATCHLESS MOTOR BICYCLE fitted with all latest improvements:

2¾ h.p. engine	... ...	*42 Guineas.*
With 3½ h.p. engine	... ...	*45 Guineas.*

Back attachment two guineas extra.

CATALOGUES ON APPLICATION.

H. COLLIER & SONS, Herbert Road, Plumstead, S.E.

200 MILES NON-STOP TRIAL,

FOR THE ARIEL CUP AND GOLD MEDAL, AUGUST 31st.

VICTORY OF THE

SINGER B.D. MOTOR

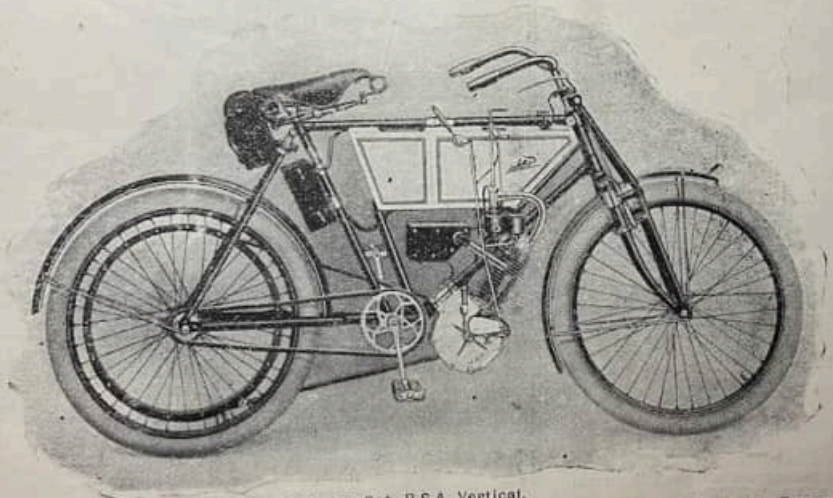
MR. T. W. MURPHY, riding a 3 h.p. belt-driven SINGER MOTOR BICYCLE, was the only competitor who succeeded in making the Non-stop run of 200 miles, from Dublin to Waterford, and return, winning the Ariel Cup and Gold Medal, and once again proving the splendid reliability of the SINGER Mr. Murphy has scored full marks in each of the three Reliability Trials in which he has competed on his Singer Motor Bicycle.

LISTS POST FREE.

SINGER & Co., Ltd., COVENTRY.

Glasgow Depot: 39, Gordon Street.
London: 17, Holborn Viaduct.
Newcastle-on-Tyne: 13, Grainger Street, West.
Dublin: 114, Stephen's Green, W.

Cycle "JAP" Motors.



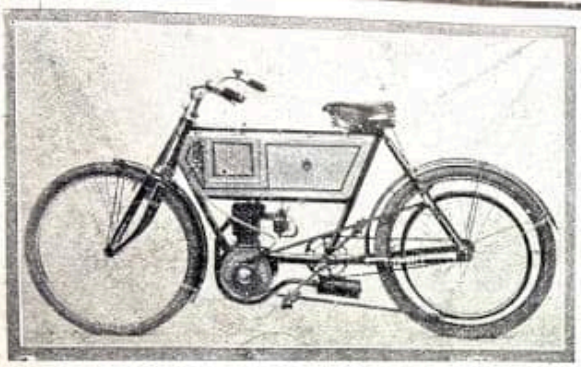
"JAP" No. 3 Motor Set, B.S.A. Vertical.

- Longuemare Carburetter.
- Improved P ent Automatic Sight Feed Lubricator.
- Brass Tank.
- Neat and Highest Possible Finish.
- 2½ h.p. Actual.
- Fastest and Best Hill-climber on the Market.
- Exceptional Workmanship and Efficiency.

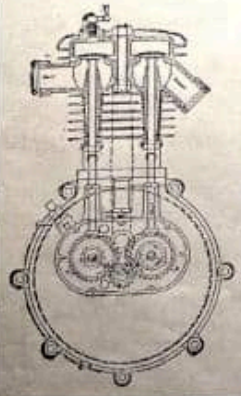
Write for Illustrated Catalogue (post free).

JOHN A. PRESTWICH & CO.,
1, LANSDOWNE ROAD, TOTTENHAM, N.

Telegrams: "Prestwich, Tottenham."
Telephone: 55, Tottenham.



1904 Standard 2¾ b.h.p. Motor Cycle.
Price £34.



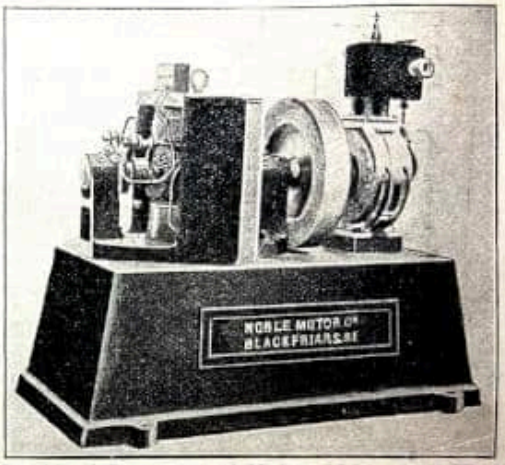
2¾ b.h.p. ENGINE, complete with silencer and wipe contact.
Price £16.

Special Terms to Agents. Write enclosing stamp for booklet.

Noble Motor Co.,

Pocock Street, Blackfriars Road, S.E.

Telephone—2080 Hop.
Telegrams—"Ignosco, London."



Combined Dynamo and Motor, 1904. 1,000 Watt.

The above illustrates our combined Dynamo and Motor for either colonial or country house lighting, charging accumulators, or for use in the electro-plating business. This size will light sixteen to eighteen 16-candle power lamps. This combined set can be had to order in sizes ranging from ten to three hundred—16-candle power lamps. The set is comprised of dynamo and engine, which can be run with either petrol, paraffin, or gas, and a extra heavy fly-wheel to ensure steady running. These are mounted on an extra heavy cast iron base forming the water tank, a centrifugal pump is also attached to circulate the water through the engine water jacket. The ignition can be either by induction coil or by high tension magneto. The engine is governed to prevent it racing when the load is taken off the dynamo by a special simple electrical contrivance. The steadiness of the light is equal to that obtained by large installations. Voltmeters, switchboards, lamps, etc., can be obtained from us to suit these engines.

Price, complete, size as above.. .. .. **£55.**
Price, complete for twenty-seven 16 c.p. lamps, **£75.**

The features of Merit

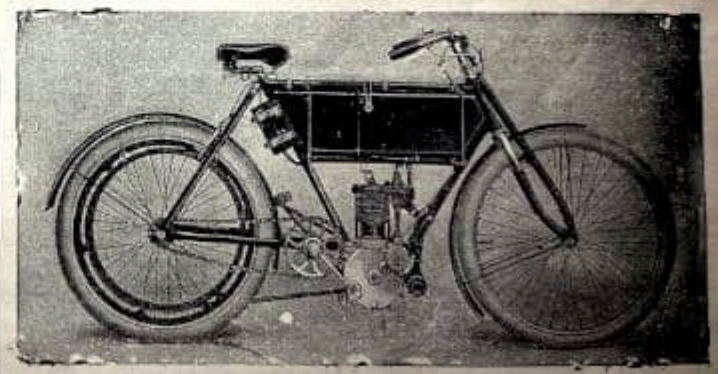
Embodied in the 1904 Werner Motocyclettes practically defy improvement, and place the riders of these exquisite machines in the proud position of owning motor bicycles, which are nearer perfection than any other on the market.

Our artistic Booklet, "The Wheel of Fortune," giving full description of all our Models, mailed upon receipt of postcard. Do not delay. Write us at once. We invite correspondence.

—

The

Werner



1904 DESIGN

Model "De Route," 2½ h.p., £45.

Model "La Grande," 3 h.p., £50.

Model "La Grande" Forecar, from £65 15s.

Free Engine at will. Engine Governor. Mechanical Valves. Improved V Belt. 2¼in. Dunlop or other tyres.

TRANSFERS FOR
MOTOR BICYCLES.
I & S LTD
GOLD ONLY OR GOLD & COLOURS
SPECIAL DESIGNS SUITABLE
FOR HEAD & TANK SUBMITTED
FREE OF CHARGE ON RECEIPT
OF ACTUAL WORDING REQUIRED
ILIFFE & SONS, LTD.
COVENTRY, ENGLAND.
LONDON: 3, ST BRIDE ST., E.C

THERE IS **COMFORT** IN THIS
FOR CYCLISTS AND MOTOR CYCLISTS.

Pneumatic . Saddle Cover

consisting of inflating indiarubber cushion, covered in leather.

CYCLE SIZE, 3/6 per post.
MOTOR CYCLE, 5/- per post.
P.O. must accompany order.

When ordering, state maker's name of saddle and size
We guarantee to fit any saddle.
Sole Manufacturers:
The Pneumatic Saddle Cover Co., Depot C,
Birkbeck Works, Birkbeck Road Kingsland, London, N. E.
Special terms to dealers and agents.

A WANT SUPPLIED

THE PRESTED CELLULOID REPAIR OUTFIT 2/- POST FREE

Effectually Repairs Accumulator Cases and every Celluloid Article. No more leaky cells, and the life and wear of everything made of celluloid indefinitely prolonged by this useful outfit.

THE PRESTED MINERS' GAS INDICATING ELECTRIC LAMP CO., LTD.,
ELTHORNE ROAD, HOLLOWAY, LONDON, N

Z.L.

Engines as used on the celebrated Griffon motor bicycles. Lightest and best. Weight 38 lbs. Complete 2½ h.p. M.O.V. Terms of

GRIFFON MOTORS LTD.,
16, Upper St. Martin's Lane, London, W.C.

"By Test, The Best."

The . . .

Humber

CHAIN-DRIVEN

MOTOR BICYCLE.

SOME OF THE TESTS WHICH PROVE IT THE BEST.

Highest Award for "Best English Made Bicycle," Crystal Palace, February 14th to 22nd.

First, Automobile Club Hill-climbing Competition, Crystal Palace, April 8th.

First, Automobile Club Hill-climbing Competition, Duthwood Hill, May 19th.

First, Flying Kilometre, Bexhill-on-Sea Speed Trials (Tourist Section), May 19th.

First, Three Miles Handicap, Tunbridge Wells, May 19th.

Silver Cup, Five Miles Scratch Race for any powered Motor Cycle, Plymouth, June 20th.

Silver Cup, Five Miles Handicap for any powered Motor Cycle, Plymouth, June 20th.

Silver Cup, Five Miles Scratch, for any powered Motor Cycle, Plymouth, June 20th.

First (Stanley Thirty-five Guineas Challenge Cup), for Motor Bicycles, 2½ bore, July 29th.

First (Silver Cup), Five Miles Scratch Race, Plymouth, August 4th.

First (Silver Cup), Two Miles Handicap, Harrogate, August 8th.

Silver Cup, Five Miles Scratch Race for all classes of Motor Cycles, Plymouth, August 4th.

Gold Medal, Five Miles Scratch International, France versus England, Plymouth, August 4th.

First (Bronze Medal), Automobile Club Speed Trials at Welbeck, Flying Kilometre (Tourist Section), August 7th.

First (Silver Cup), Five Miles Scratch Race, Plymouth, August 9th.

First (Silver Cup), Five Miles Handicap from Scratch, Plymouth, August 9th.

First, Hill-climbing Contest, Harewood Hill, August 23rd.

First, River Hill Climbing Contest, September 3th.

First, Westerham Hill Climbing Contest, September 5th.

Highest Marks and Gold Medal in Automobile Club's Reliability Trials.

HUMBER, LIMITED,

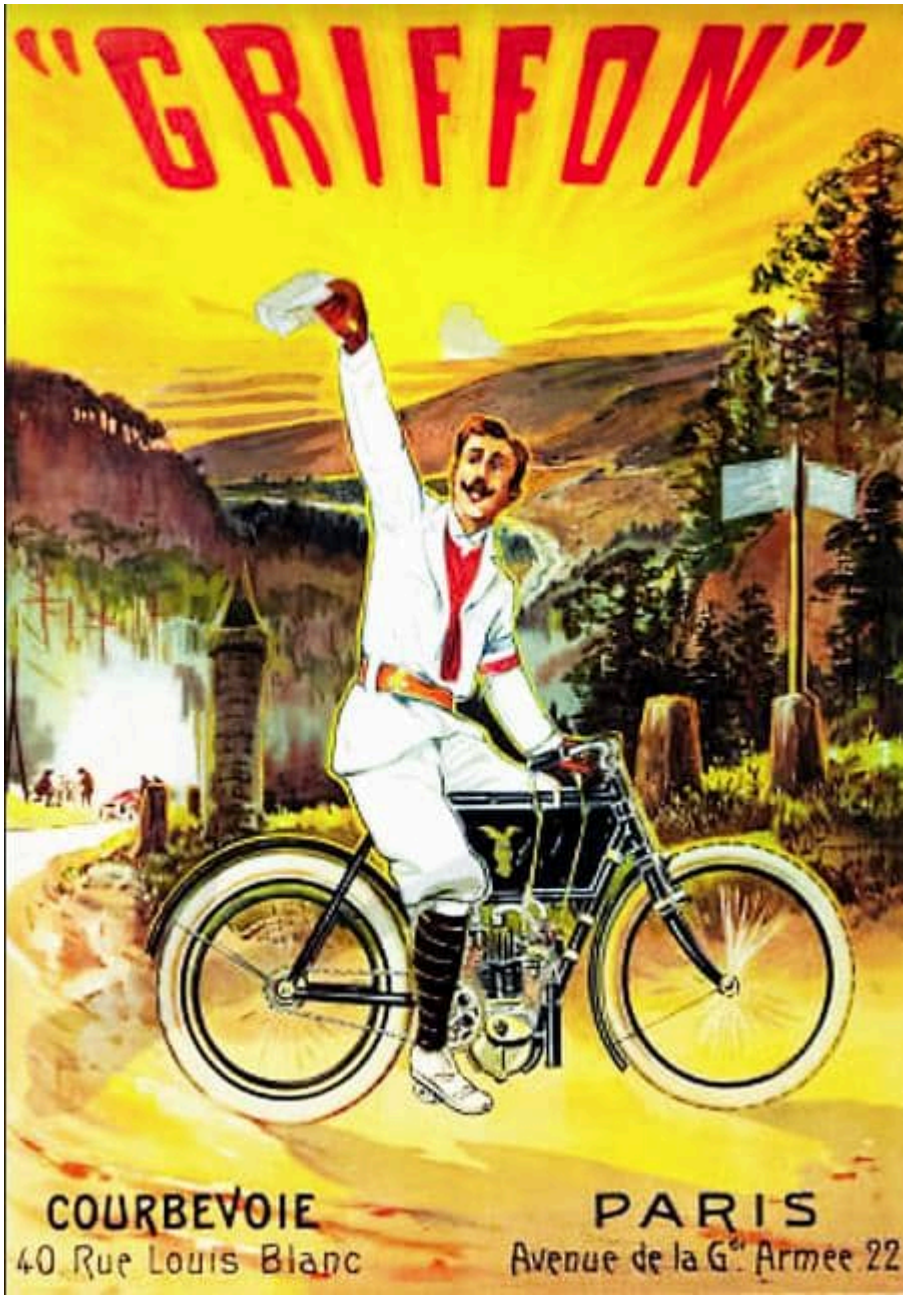
32, Holborn Viaduct, London, E.C.

Works: Beeston (Notts) and Coventry.

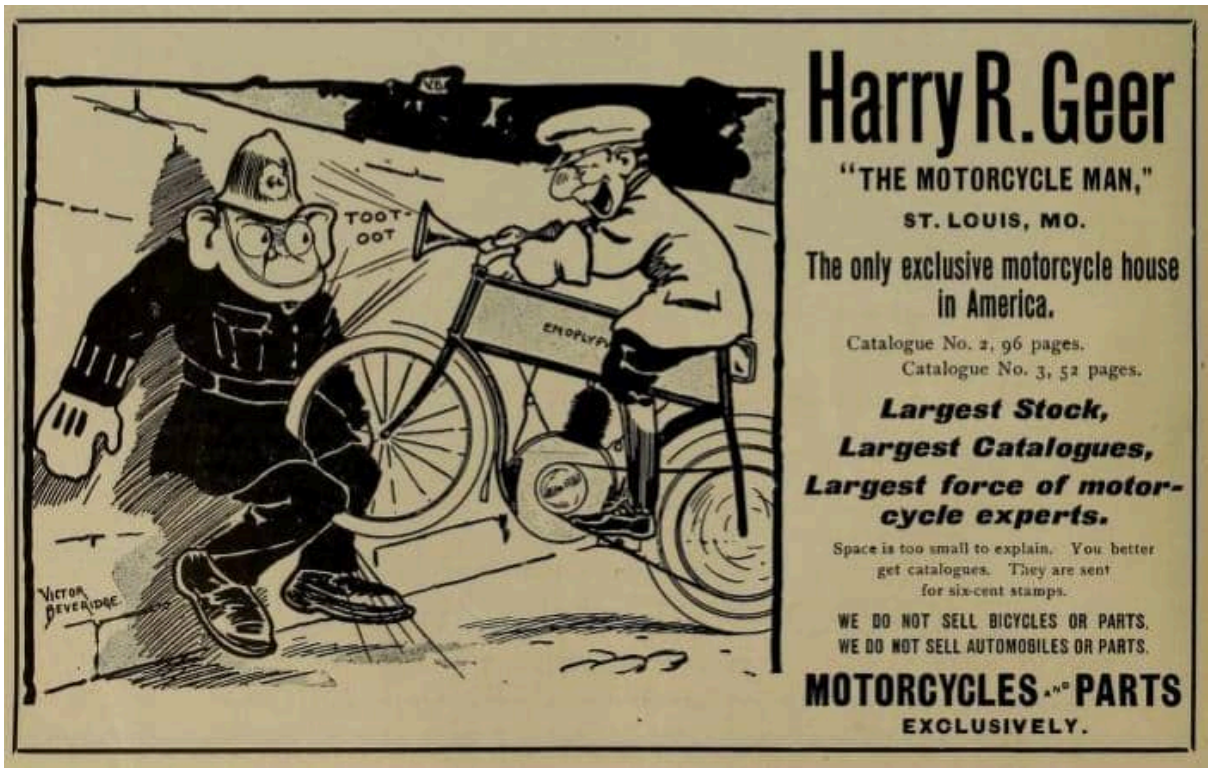
We are exhibiting at the Stanley Show, Stands 94 and 125.

No. 39.

Neckarsulmer Fahrrad-Werke A.G.
Königl. Hoflieferant, Neckarsulm.
Bestes
Motorrad der Welt!
Aelteste Spezial-Fabrik.
Ueber 4000 Stück zur grössten Zufriedenheit verkauft.
Erprobt und bewährt
Kein Neulings-Produkt.
Beguem, Flink, zuverlässig, leistungsfähig.
Prachtkatalog gratis!
Hervorragende Neuerungen.


"GRIFFON"
COURBEVOIE
40 Rue Louis Blanc
PARIS
Avenue de la Gde Armee 22

MOTOCYCLETTE "La LOUVE"
MONTANT RÉELLEMENT TOUTES les COTES
GARANTIE
de TOUS VICES de CONSTRUCTION
N° 1. 2 ch ½ 475 Fcs. NET
N° 2 de luxe. 3 ch. 560 Fcs NET.
CATALOGUE et NOTICE FRANCO sur DEMANDE
A. LOUVEAU, 42, Rue du Louvre, PARIS


TOOT-OOT
VICTOR BEVERIDGE
Harry R. Geer
"THE MOTORCYCLE MAN,"
ST. LOUIS, MO.
The only exclusive motorcycle house in America.
Catalogue No. 2, 96 pages.
Catalogue No. 3, 52 pages.
Largest Stock,
Largest Catalogues,
Largest force of motor-cycle experts.
Space is too small to explain. You better get catalogues. They are sent for six-cent stamps.
WE DO NOT SELL BICYCLES OR PARTS.
WE DO NOT SELL AUTOMOBILES OR PARTS.
MOTORCYCLES AND PARTS
EXCLUSIVELY.

Here are some of the ads that accompanied the Motor Show at the Agricultural Hall, Islington:

WHAT'S IN A NAME?

Best After Tests

In the case of the "Bat" it means everything that's good. The tests to which this flying machine has been subjected have been the strictest. In each instance the "Bat" came out on top. On top in the 1,000 Miles Reliability Trials, First in War-e Records, holding more records than ALL other makes put together.

THE BAT MOTOR MANUFACTURING CO., LIMITED,

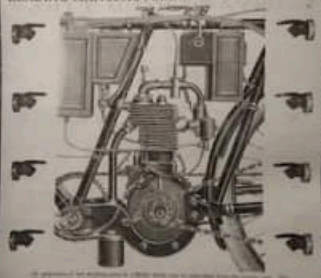
ON APPRO

FOR TWO DAYS

MOTOR CASTINGS CO.,

THE BOWDEN SYSTEM OF Handle-bar Control

LEADING MANUFACTURERS MOTOR CYCLES



E. M. BOWDEN'S PATENTS SYNDICATE, Ltd.

BRADBURY "PEERLESS"

Think Twice!!

"Think twice" is good advice.
Are you buying a motorcycle?
Then think twice!
And on second thoughts you'll send for the

"BOOK OF THE PEERLESS"

A book that not only tells you how to ride the BRADBURY "PEERLESS" MOTORCYCLE, but also why you should ride it.
The "Book of the Peerless" is free—just write for it to the address below.
The Bradbury "PEERLESS" is the winner of the S. F. EDGE CUP in the 200 Miles Non-Stop Run, and Winner of the 1,000 Miles Reliability Trials.
That's one point in its favour—the book tells the others!

BRADBURY & CO., Ltd., Dept. M. OLDHAM.
LONDON: 8, Farringdon Avenue, E.C.

B.S.A.

B.S.A. FITTINGS.

Every Cyclist should read the 1904 Handbook. Free by post.

B.S.A.

B.S.A. Girder Head

as fitted to all patterns of B.S.A. Motor Cycle Frames.

All particulars on application.

Birmingham Small Arms Co., Ltd., Small Heath, BIRMINGHAM.

Are you looking for a Bargain?

We can supply exactly what you are seeking, either new, shop-soiled, or second-hand Motor Cars, Motor Cycles, or Accessories of any kind. You will find us at STAND No. 249, Agricultural Hall, March 19-26th. See us and get prices and terms for anything you are repuiring. We have a number of Second-hand Machines to clear. We give an assortment below, but we have others. Let us know what you repuire, we can suit you. Machines sent on approval.

Cycles.

Ref. No.	Type of Machine.	H.P.	Tyres.	Cash Price.	£10 down and 12 ins'lm'ts
130	Excelsior, splendid condition	1¾	Clincher	£19 10s.	18/2
132	Singer, magneto ignition.	2	Dunlop	£21	21/1
138	Components, Minerva M.O.I. valves, shop soiled only.	2	Liberty	£31 10s.	—
139	Clement Garrard, 2 speed gear, chain and belt drive, shop soiled only.	2	Clincher	£34	—
143	Excelsior, 1903 M.M.C. Engine, new.	2¾	Clincher	£36 15s.	51/3
144	Ariel, No. 1, trembler coil, new.	2¾	Clincher	£39 16s.	—
C	Rex, 1904 latest pattern, vibrationless, patent air draught, absolutely new, 12 months' guarantee. Cancelled order.	3½	Clincher	£45	70/6
168	Ariel, No. 1, trembler coil, Empire safety stand.	2¾	Clincher	£29 10s.	37/6
195	Ormonde, H. & P. carrier and stand.	2¾	Clincher	£28 10s.	35/5
B	Humber, chain drive.	2	Dunlop	£25	—
H	Bat, De Dion engine.	2¾	Dunlop	£31 10s.	—
121	Rex, 1903 m/c, new.	3	Dunlop	£39	56/5
D	Quadrant, good as new, 1903 m/c.	2	Clincher	£28	—
208	F.N., 1903 m/c, splendid light mount.	2	Clincher	£23 10s.	25/10

Cycles (contd.)

Ref. No.	Type of Machine.	H.P.	Tyres.	Cash Price.	£10 down and 12 inst'lm'ts
223	Werner, 1903 m/c, good running order.	2¾	Dunlop	£26 10s.	31/7

Tricycles and Tricars.

123	Beeston Tricycle	2¾	Grappler	£19 10s.	18/2
127	Singer Tricycle with back attachment, splendid order, lady or gent back. All tools extra, valise.	2	Dunlop	£39	35/10

Cars.

Wolseley.	... 10 h.p., 2-cylinder, 4 speeds and reverse, dust screen, tonneau body, finish dark green, complete with four lamps, rugs, horn, etc. Trial given. A great bargain.	£300	Exchange or Credit Arranged.
Wolseley.	... 5½ h.p., spider seat, leather, head lamps and horn. Suit doctor. Trial given	£135	
Prunel.	... 9 h.p. Aster engine, equal size wheels, detachable tonneau, 3 speeds and reverse. In good order. Trial given ...	£135	Exchange or Credit Arranged.
Baby Peugeot.	... 5 h.p. two seats. Good condition. Trial given	£90	

The CIVIL SERVICE MOTOR & CYCLE AGENCY, Ltd.,

FEATHERSTONE BUILDINGS, HIGH HOLBORN, LONDON, W.C.
(Head Office: 292, High Holborn.)

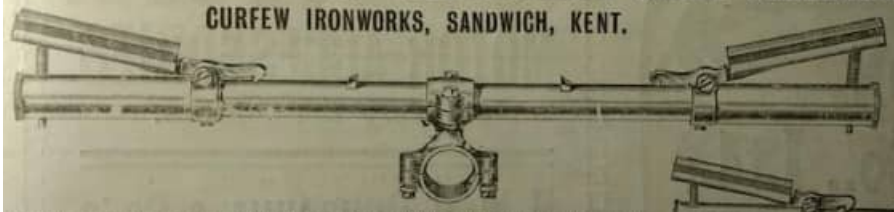
Agents for Clement-Garrard, Rex, R. & R., Ariel, and all other leading makes of Motor Cycles and Cars.
Lowest prices for Cash or Extended Payments. Cars, Motor Bicycles and Pedal Bicycles taken in part payment

CLARK'S PATENT TELESCOPIC ANTI-VIBRATORY FOOT-REST,

CURFEW IRONWORKS, SANDWICH, KENT.

FOR MOTOR CYCLES.

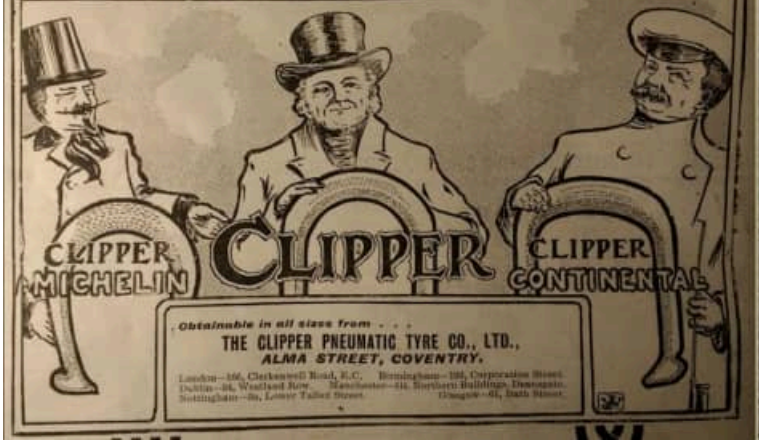
Anyone desirous of purchasing the Patent rights of this invention, together with three other provisional protections of different designs—please communicate.



Can one imagine anything more injurious than a rider hanging on the peak of the saddle with his legs straight under him without means of changing his position. This invention entirely overcomes these difficulties, as it enables the rider to **SIT BACK** on the saddle (not hang) is a change for the legs, and vibration is absorbed by the rubbers and springs on foot levers. It is most easily opened or closed, without taking one's eyes off the road in operating.

PRICE ONLY **22/-**—Fullest Particulars on Application—and are also supplied by Factors and Agents.

THE BEST OF THE ENGLISH AND FOREIGN TYRES.



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THE CLIPPER PNEUMATIC TYRE CO., LTD.,
ALMA STREET, COVENTRY.

London—166, Clerkenwell Road, E.C. Birmingham—188, Corporation Street. Dublin—34, Westland Row. Manchester—44, Northern Buildings, Deansgate. Nottingham—8a, Lower Talbot Street. Glasgow—61, Bath Street.

THE

CROUCH MOTOR BICYCLE

is of 3 horsepower—the power of live, full-sized horses, too—not ponies, as is the "horsepower" of many other motorcycles.

The Crouch will "take you there and then take you back," which is another Crouch distinction with as great a difference.

THE CROUCH IS NOT A "BOX OF TRICKS."

Every part of it is simple and accessible, and as easily understood as it is accessible. It fairly bristles with exclusive features. Our catalog—which is to be had for the asking—explains them.

Inquiries Invited and Agents Wanted in Unoccupied Territory.

BOSTON CYCLE & SUNDRY CO., 48 Hanover St., Boston, Mass.

THE "COSSOR" DENSIMETER

British-made and guaranteed accurate.

Prices :—
Securely packed with glass jar, in tin case, **1/6**

Do., in Morocco leather case, **2/6**

Anyone can understand it.

Ordinary French Densimeter, **10d.** in tin case.

Postage 2d. extra

SEE US AT STAND

125

Agricultural Hall.

GOGGLES.

Largest Show in the World.

Silk sides, rubber-covered wires ... **1/6**
Superior quality, with hand-worked glasses **2/6**
New Model, for use on very fast cars, Leather sides, aluminium cups, hand-worked glasses **7/6**

No. 403D—In Silk, with nose piece. Colours: fawn, dark grey, silver, or grey. Rubbered or silk braided arms, **5/6**

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Postage 3d. extra.

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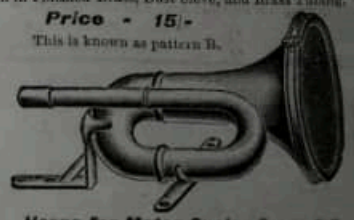
We keep the largest stock in the world of all the newest styles of horns and fittings, at lowest prices.
New Dash-board fitting for Small Cars.—Complete Horn in Polished Brass, Dust Sleeve, and Brass Tubing.

Price - 15/-

This is known as pattern B.



Horns for Motor Cycles from 3/6.

Volturette or Motor Cycle Gas Lamp, **17/6**

Polished Brass or Nickel Plated.

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THE BILLINGS & SPENCER, 8 inch	...	**3/3.**	Postage 3d.
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New "King Dick" Motor Cycle Wrench	... ...	**4/3**	

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HAMILTON
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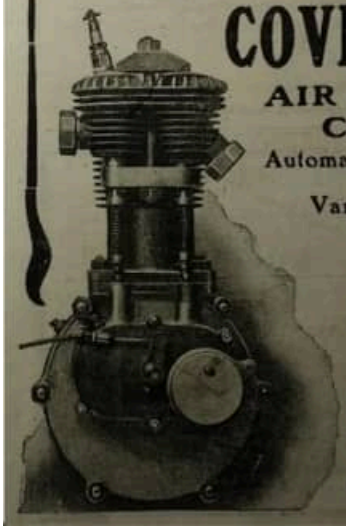

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Our
PATENT VALVE GEAR and PATENT FIRING DEVICE,
Will Interest You.

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We aim at Killing
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And never miss the MARK!!!

Ten times the value of any imitation!!

Write for Booklet. Free!!!
It will tell you all about it, from

Reliance Engineering Works,
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"SAUSER" Sparking Plugs

IMPROVED 1904 PATTERNS.

FOR CARS. FOR CYCLES.

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BEST SEVRES PORCELAIN!

EVERY PLUG GUARANTEED!

4/- 3/6.

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Best French Coils, Ampere and Volt Meters supplied at lowest prices.
These Plugs can also be supplied for American Cars.

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HANDLE-BAR.
15/- Post Free.
Takes all vibration from the arm. Made ⅞ stem, 21 in wide, flat or upturned. Special shapes to order 2/6 extra.
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The Phœnix Spring Seat-Pillar 7s. 6d. Postage 4d. Send diameter present pillar and weight of rider.
YET ANOTHER—
Phœnix Belt Dressing, 1s. and 2s., post free.
PHŒNIX MOTORS LIMITED,
Blundell St., Caledonian Rd., King's Cross. N.
For your Motor Cycle.
With or without Number Plate.
Lucas "Motor Acetyphote"
THE SPECIAL LAMP BRACKET
Extra Strong.
LUCAS HORNS.
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LUCAS'S
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JOSEPH LUCAS, Ltd., Birmingham.
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"King of the Road" Side Lamp
For your Car.

Here's a selection of ads from the colonies…

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M-A-R-S-H

PRICE, $165

Has ample power to climb any hill at full speed

Will outwear motor cycles selling at much higher prices

Will give better satisfaction and require less repairs than any other

We are now ready to talk business with good agents. Our terms are cash, but we don't want deposits. We notify dealers of dates of shipment, at which time dealers remit an amount to cover transportation charges, the cycles then go forward C. O. D., subject to inspection at transportation offices.

We also manufacture tandem attachments for our 1903 and 1904 models . . . Price, $25.00

At present we can make deliveries at once, or specify dates of shipments. As soon as the warmer weather approaches we will receive many rush orders, therefore, if you want motor cycles promptly, order now.

AMERICAN MOTOR CO.

BROCKTON, MASS.

HERE IS THE MOST

Startling Motor Cycle

PROPOSITION EVER MADE

THE 1904 **MARSH** $125.00

and $3300.00 Free in Valuable Prizes to Hustling Agents.

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CROUCH MOTOR BICYCLE

is of 3 horsepower—the power of five, full-sized horses, too—not ponies, as is the "horsepower" of many other motorcycles.

The Crouch will "take you there and then take you back," which is another Crouch distinction with as great a difference.

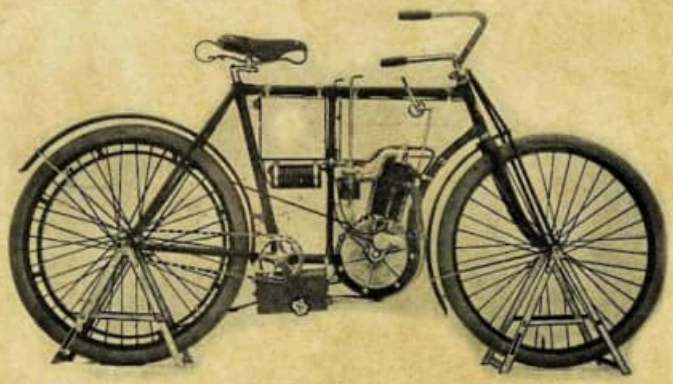
THE CROUCH IS NOT A "BOX OF TRICKS."

Every part of it is simple and accessible, and as easily understood as it is accessible. It fairly bristles with exclusive features. Our catalog—which is to be had for the asking—explains them.

Inquiries Invited and Agents Wanted in Unoccupied Territory.

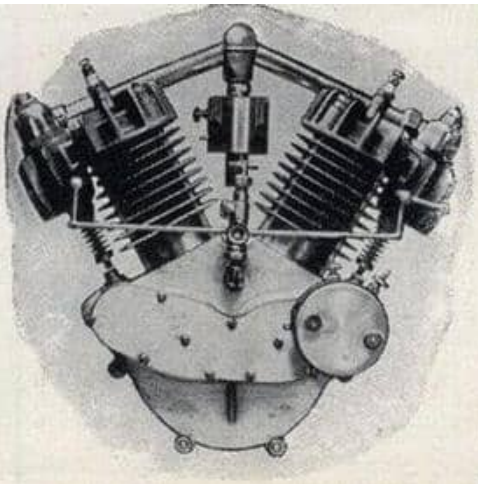
BOSTON CYCLE & SUNDRY CO., 48 Hanover St., Boston, Mass.

CROUCH MOTORCYCLE, 1904 MODEL



Agents write. Immediate delivery assured. The Crouch is the product of years of practical experience, and we have to-day the most perfectly-balanced and easiest steering Motorcycle on the market.

BOSTON CYCLE & SUNDRY CO., J. M. LINSCOTT, Mgr., 48 Hanover St., BOSTON, MASS.



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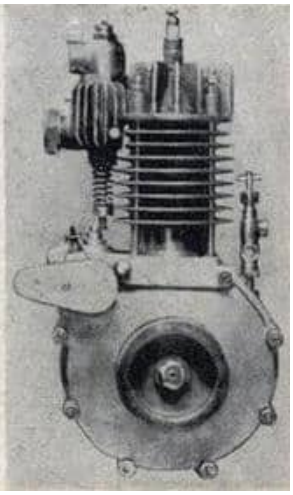
Single and double cylinder; roller bearings; 4 rings. Many original features. Most powerful and durable. Holds world's record of 10 miles in 8 minutes, 54 2-5 seconds.
All accessories supplied.
Also complete motor cycles.
Export Trade Solicited.

G. H. CURTISS MFG. CO.
HAMMONDSPORT, N. Y.

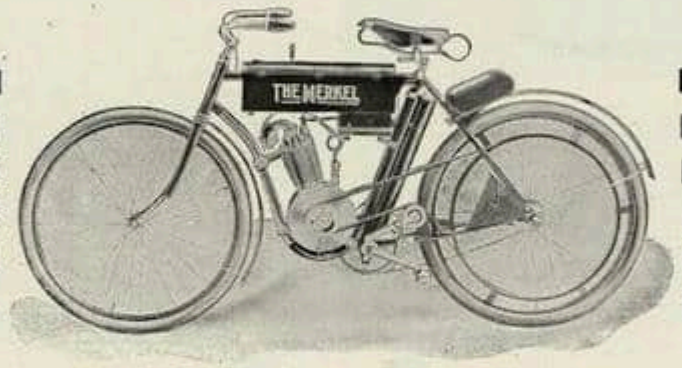


The 1904
MERKEL MOTOR CYCLE

IS CERTAINLY THE BEST PROPOSITION ON THE MARKET THIS SEASON . . . . .

It satisfies the long-felt want of a strictly high-grade motor cycle at a popular price. Agents and dealers should grasp this opportunity without delay. There are ten riders who can purchase a motor cycle at $150, to one who will pay from $200 to $225.

MERKEL



MERKEL

1904 Model—Price, $150

Single Lever Control. 2¼ H. P. Motor. Spring or Rigid Frame. 1-in. Flat Belt Transmission. New Merkel Fork and Handle Bar. 2-in. Dunlop Motor Cycle Tires. Jump Spark Ignition (properly worked out). Corbin Brake.

The Merkel is the Simplest and Most Reliable

Write for catalogue and circulars

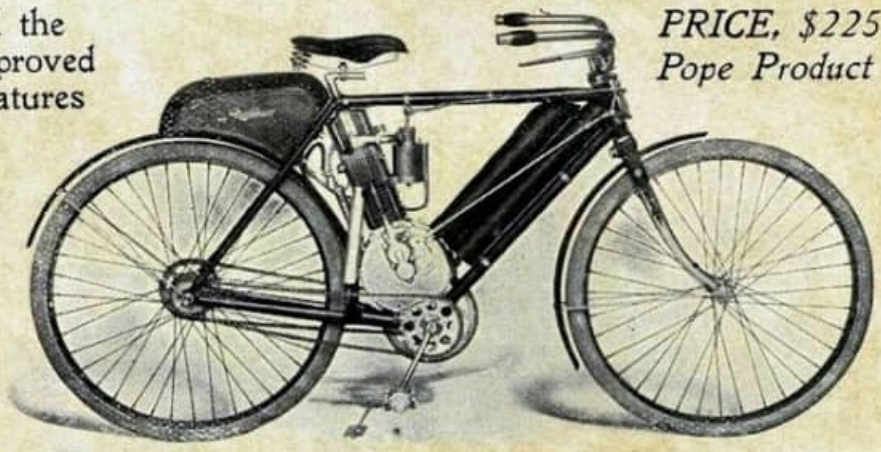
THE MERKEL MFG. CO.
MILWAUKEE, WIS.

1904

Rambler, Crescent, Monarch, Imperial

All the Improved Features

PRICE, $225.00
Pope Product



Motor Bicycles

POPE MANUFACTURING CO.

WESTERN DEPARTMENT, 497 Wells St., CHICAGO, ILL.

Rambler
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Monarch
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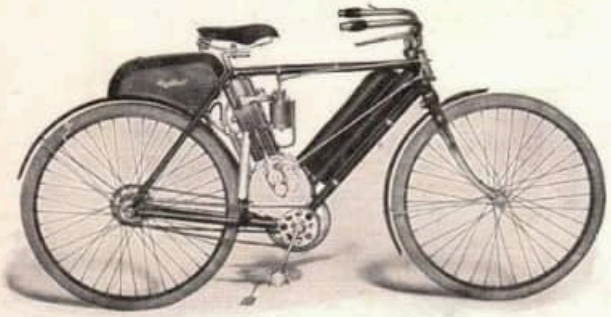
1904

Motor Bicycles



PRICE, $225.00

All the Improved Features. POPE PRODUCT.

POPE MANUFACTURING CO.

WESTERN DEPARTMENT, - 497 Wells Street, - CHICAGO, ILLINOIS

THE

W. Hoffman 3 h. p. Touring Motor Cycle

Price, $150.00 Weight, 140 pounds

This is a light, but very strong motor cycle, constructed for touring purposes, and will be found suitable for use on all sorts of roads. Full particulars on application.

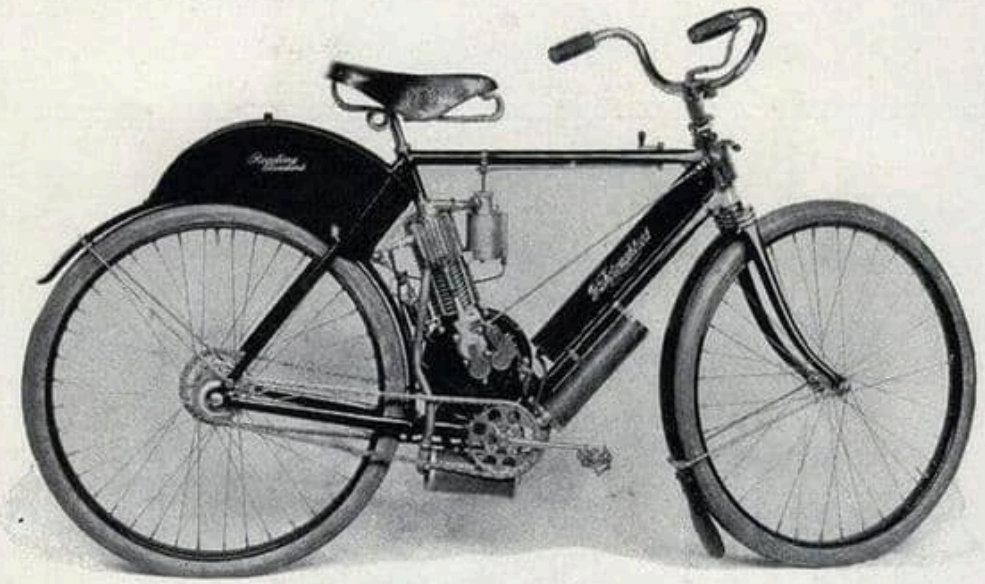
We also manufacture various types of automobile, marine and bicycle motors, air or water cooled; 1, 2, 3 and 4 cylinder. Castings for 1¼, 2 and 3 h. p. bicycle motors.

Send for catalog.

W. Hoffman Motor Works

1253 N. Halsted St., Chicago, Ill.

The Thoroughbred The Motor Cycle
of quality



Price, $210, and worth every cent of it, too

Makers of the famous
"READING STANDARD"
BICYCLES

Manufactured by
Reading Standard Cycle Mfg. Co.
READING, PA.

The Tourist Motorcycle

bears the same relation to most others that the Pullman Car does to the ordinary coach. It is one that you can be proud to own. Catalogues will convince you. We are open to place agencies.
The Breeze Carburettor, Muffler, and Straining Funnel are favorites.

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The Feature at

The Automobile Club Exhibition

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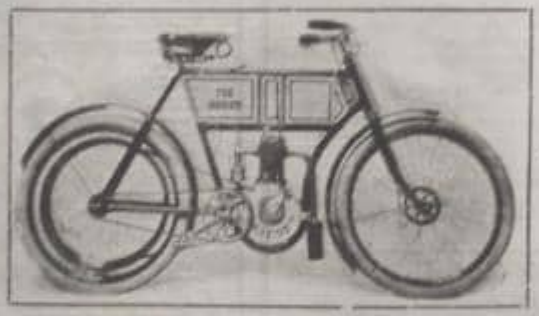
Stand No. 160.

ASCOT MOTORS.

For Touring. 2¼ h.p. 40 Gns.

For Racing 3¼ h.p. £46.



ENGINES. SETS and PARTS.

Speciality: Repairs and Renovations to every make of Motor Bicycle.

The ASCOT TRI-CAR. £60.

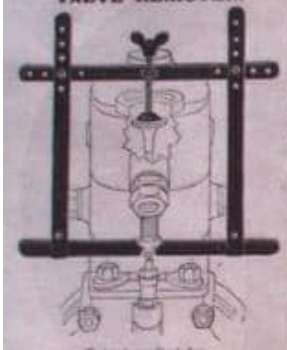
Some Agencies still open.

Our patented method of mechanically-operating valves can be appreciated at a glance. No pinions or cams to wear out. Nothing that can give trouble. Absolutely wear proof.

Ascot Motor Company,

312, Pentonville Rd., London, N.

The B.K. EXHAUST VALVE REMOVER.



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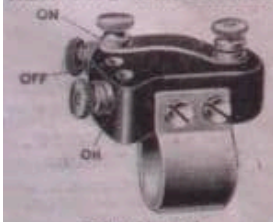
INDISPENSABLE—
To every one who has a car.
In every workshop.

Price **3/-** each.

NEW TWO-WAY SWITCH.



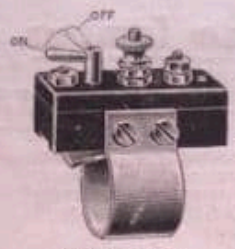
Price **4/-** each.

NO SWITCH HANDLE REQUIRED.

If you wish to dispense with your switch handle, it is not necessary to fix a substitute, shaped like a small saucepan, on your handle-bar.

The B.K. Handle-bar Switch is designed — to effect momentary or permanent — interruption.

NEAT AND NICELY FINISHED.



WELL AND STRONGLY MADE.

Price **5/-** each.

THE B.K. MOTOR EYE GUARD.

Bound with Silk only, **9d.**

Bound with Silk and Chenille, **1/-.**

Transparent Celluloid.

THE BEST MOTOR CYCLE TOOL BAG.

No. 12.—Solid leather, with divisions for tools and spare parts, **8/-** each.

AN ATTRACTIVE SIGN FOR AGENTS.

Enamelled Iron.

White letters on a red ground. Price **5/4** each.

You know the Gearbox.

SIZE 18" × 12"

BRANSOM, KENT & CO., Ltd., LONDON, & PARIS,

Telephone 9085 London Wall. 332, Goswell Rd., E.C.

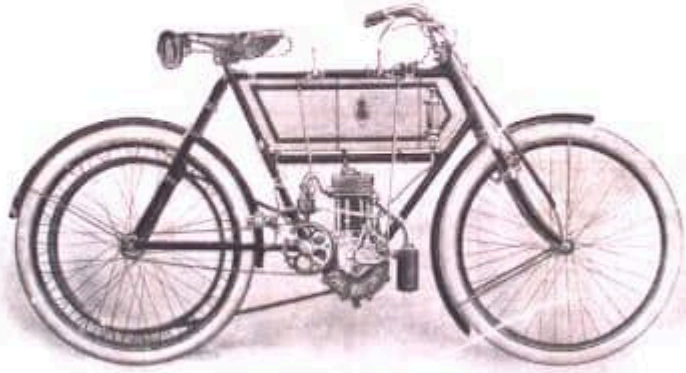
Telegrams "Cycladatus, London" 1, Rue, Torricelli.

7 Times 5 is 35,

the price in pounds of the

"BROWN"

Motor——2 h.p.——Bicycle.



The general opinion is that the "Brown" is 10 times as good value as any on the Market. And the times it will make on the road !!! For simplicity it holds the field, and its handsome appearance is applauded by everyone.

Deliveries from Stock. Gradual Payments arranged.

A full specification awaits your postcard.

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West End Showroom—15, Newman Street, Oxford Street, W. Manchester Depot—60-62, Deansgate.
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Order now for Easter and save disappointment.

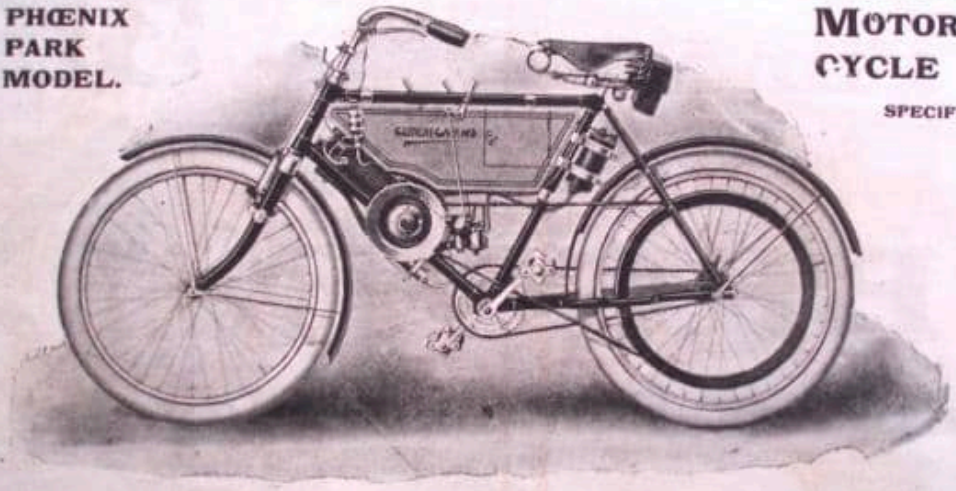
Wholesale Agents for E.C.C. Ignition Specialities.

THE NEW .. .. HIGH POWERED

CLEMENT-GARRARD

PHŒNIX PARK MODEL.

MOTOR-CYCLE



SPECIFICATION—

Specially designed 23 inch or 26 inch frame, 26 inch wheels, 2 inch Clincher tyres, back pedal and front rim brake, 2½ B.H.P. Clement-Garrard high speed engine (19 lbs. complete with fly-wheel), belt transmission, spray carburetter, Garrard-Maxfield high tension ignition, frame tank with large petrol capacity. Weight from 80 lbs.

PRICE 38 GUINEAS.

Most Advanced Design. Unequalled for Durability, Lightness, Economy, and Efficiency.

THE GARRARD MNFG. Co., Ltd., Ryland St., Birmingham.

Agents—LONDON—The Civil Service Motor & Cycle Agency, Ltd., 10a, Featherstone Buildings, High Holborn.
MANCHESTER—Mr. F. Bullock, 23, Bury New Rd. BIRMINGHAM—Repairing Depot—The Norton Mfg Co., 320, Bradford Street.

OUR SET COMPRISES:

2½ h.p. Corydon engine, with V pulley, exhaust lifter, silencer, contact, sparking plug, and clips for attaching to loop.

Frame. Complete set of finished lugs and tubes, including double top tubes, girder head and forks built up and plated, chain wheel, cranks and bearings.

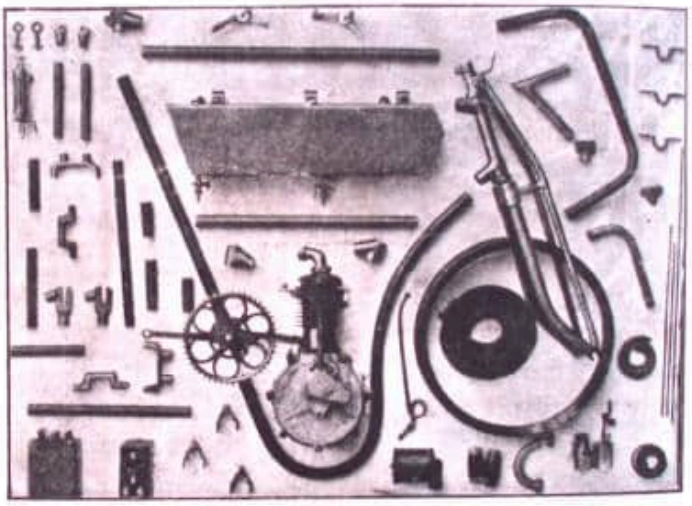
Tank. Compartments for petrol, lubricating oil, accumulator and coil, with fittings, including petrol gauge, oil and petrol taps and fillers, two-way sight feed (4 sights), oil pump and clips for attaching to side of tank, ratchet levers and rods for control of ignition, throttle and exhaust lifter, with clips for attaching tank to frame.

V driving rim, ⅞-in. V Belt, handle bar and stem seat-pillar tubes, inlet, exhaust, petrol and oil tubes, unions and chain adjusters.

Carburetter, Spray type, Corydon Automatic or F.N.

Allumage. 20 A.H. Accumulator with non-corrosive terminals and extra insulation plates, powerful induction coil, switch handles, and high and low tension cable.

Above set can be sent "on approval" for seven days, if pre-payment is made. Write for List.



The "CORYDON" Set.

Please write for prices, terms, and descriptive list

BRADBURY BROS., LTD.,

108, HIGH STREET, CROYDON.

2/6

PER 4lb. TIN.

Most Economical Carbide Extant.

An Absolute Success in the Motor Lamp.

Obtainable from Motor Dealers throughout the Kingdom.

We send Carriage Paid if unobtainable.

THE COUNTY CHEMICAL CO., LTD.,

Manufacturing Chemists and Oil Refiners — Excelsior Works, BIRMINGHAM.

MOTOR WANTS.

G.B. Motor Oil. Absolutely reliable. Highest lubricating properties.
Quart tins 1/8 each. ½ Gal. tins 2/9 each. 1 Gal. tins 4/6 each.

G.B. Motor Grease. High melting point. Thoroughly tested.
1 lb. tins 9d. each. 2 lb. tins 1/4 each. 7 lbs. tins 4/6 each.

G.B. Repair Outfits. The most complete Repair Outfits extant.
No. 1 for Motor Bikes. 1/6 each. No. 2 for Motor Cars. 3/6 each. No. 3 for Motor Cars. 10/- each.

G.B. Motor Chain Lubricant. Preserves and waterproofs the Chain. Reduces noise and friction to a minimum. Push-up Tubes 1/- each. 1½ lbs. tins 1/3 each.

G.B. Belt Dressing. Imparts a firm grip, and at the same time acts as a leather preservative. Push-up tubes 6d. and 1/- each.

G.B. Car Polish. Imparts a lustrous polish to the enamelled and varnished parts of Motorcars. Large jars 1/- each.

G.B. Metal Polish. For cleaning and polishing the bright parts of Motorcars, Cycles, etc. Large tins 1/- each.

G.B. Celluloid Cement. Instantly repairs leaking accumulators. Tins 1/- each.

DUNHILL'S MOTORITIES.

EVERYTHING BUT THE MOTOR.

Catalogue sent post free to any address for six stamps.

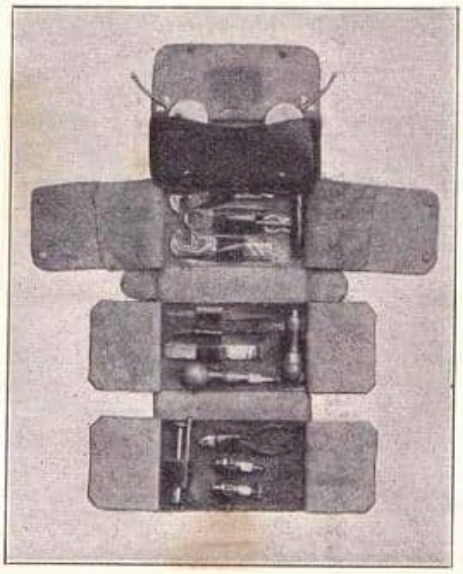
53. 80. 674. 566.

M.C. Outfit.

Leather Jackets. 53. Strong black leather jackets, well cut, well made, and extremely serviceable ... ... **£1 5s.**
55. Ditto, lined warm wool lining, as illustration **£2 5s.**

Leather Breeches. 58. Strong black leather breeches, well made and serviceable **£1 1s.**
80. Superior black leather, lined throughout as illustration ... ... **£2 5s.**

Special M.C. Puttee Leggings. With pliable gaiter fronts.
566. Black or brown calf skin ... ... **30s.**



The M.C. Perfecta Tool Kit.

A Wayside Workshop.

1199. Containing many useful tools. Saddle-made leather wallet, plated unrustable tools ... ... **£1 13s. 6d.**

567.

The M.C. Semi-Breeches.

(Patent.)

567. An ideal garment for **MOTOR CYCLING**, specially designed, giving all the protection necessary, and most comfortable in wear. They are in the form of overalls, and whilst having the appearance of knickers, can much more readily be put on or taken off. Black leather, lined wool ... ... **£1 15s.**

DUNHILL'S

Everything but

Wooleather Gauntlet Gloves.

1126

1126 Closely-knitted Wool Gloves, with Cape Leather Palms and Gauntlets. Very warm.
Price ... 10/6

1127 Woollen Gloves, Cape Leather Palms with long wrists, specially adapted for Motor Cyclists.
Price ... 3/6

Motor Cycling Boot & Ankle Cover.

Instantly adjusted.
Fastens with Patent Spring Clip.
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1132

M.C. Leather Overalls.

524 Fastening to the Brace Portions. Below the knee is fixed a gusset, which enables the overalls to be easily drawn over the feet. The gusset successfully keeps out the wet, and is drawn together by means of patent clips which hold it firmly, and are instantly adjusted. These overalls not only keep the trousers clean and dry, but present a very neat appearance. Lined Leather Glissade.
Price ... 35/-

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the Motor.

Dunhill's Speed Indicator.

(Goodlad's Patent.)

Works on an entirely new principle, which continually registers the speed travelled. It can be fixed to any Cycle or Motor Cycle in a moment.

Pattern 1,041 registering up to 28 miles per hour

Price — 17/6.

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Price — 21/-

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Motor Cycle Watch Case.

With Anti-Vibration Spring Handlebar Attachment.

595. Fitted with specially constructed Nickel Watch.

Case can only be opened by aid of secret lock.

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Correct M.C. Attire.

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For Cyclists or Motor Cyclists entirely doing away with the necessity for thick gloves. Can be fixed in a few seconds to any handlebar.

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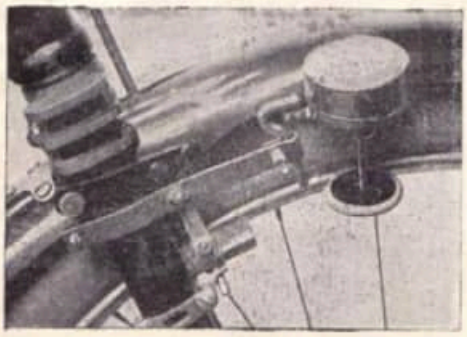

1041.

Dunhill's Speed Indicator.

Most perfect and simple yet produced. Can be fixed to any Cycle or Motor Cycle in a few minutes. No complicated mechanism to get out of order.

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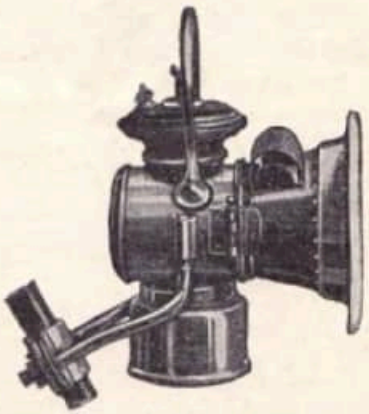
1042 (Registering up to 42 miles per hour), **21s.** Adapted for Motor Cycles.



1135.

1135. A very powerful Acetylene Headlamp, with strong bracket as illustration, **£1 1s.**

This lamp is suitable for Regulation number attachment.

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Motor Cyclists' Tailors and Outfitters.

Numbers Two and Five, Conduit Street, LONDON, W.

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MOTOR BICYCLE.

Lagonda ratchet levers on tank, giving the most simple and reliable control. Lagonda 22in. diamond frame, being by far the strongest frame for the weight possible to build. Wheels 26in., built with Wedgewood plated rims and twelve gauge tangent spokes. Tank made of twenty gauge steel, holding petrol for two hundred miles, lubricating oil for six hundred miles. Two non-spilling paste accumulators, capacity six hundred miles each, and high speed trembler coil. Large and efficient mudguards, 3½in. wide. Lagonda silencer, giving an absolutely quiet machine at will. Driving belt, extra large V section. Powerful brakes.

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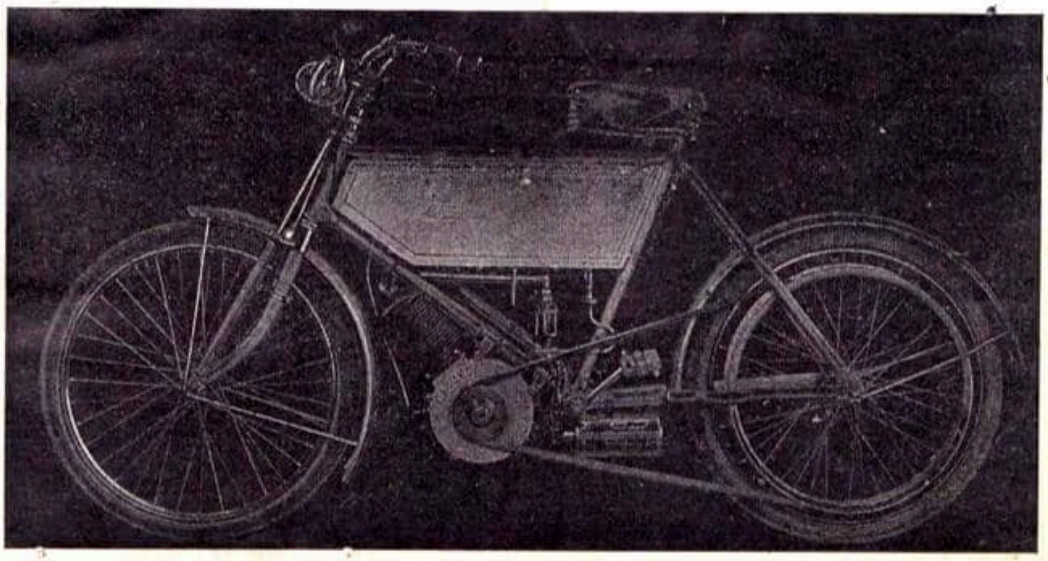

The only machine in the 1,000 miles trials to climb Westerham without pedal assistance.

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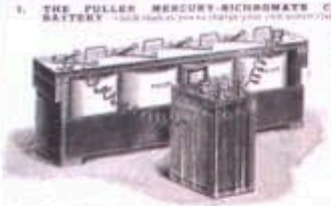

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This size is specially recommended for small Cars and Voiturettes.

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Nickel or Brass. Post Free 10s.

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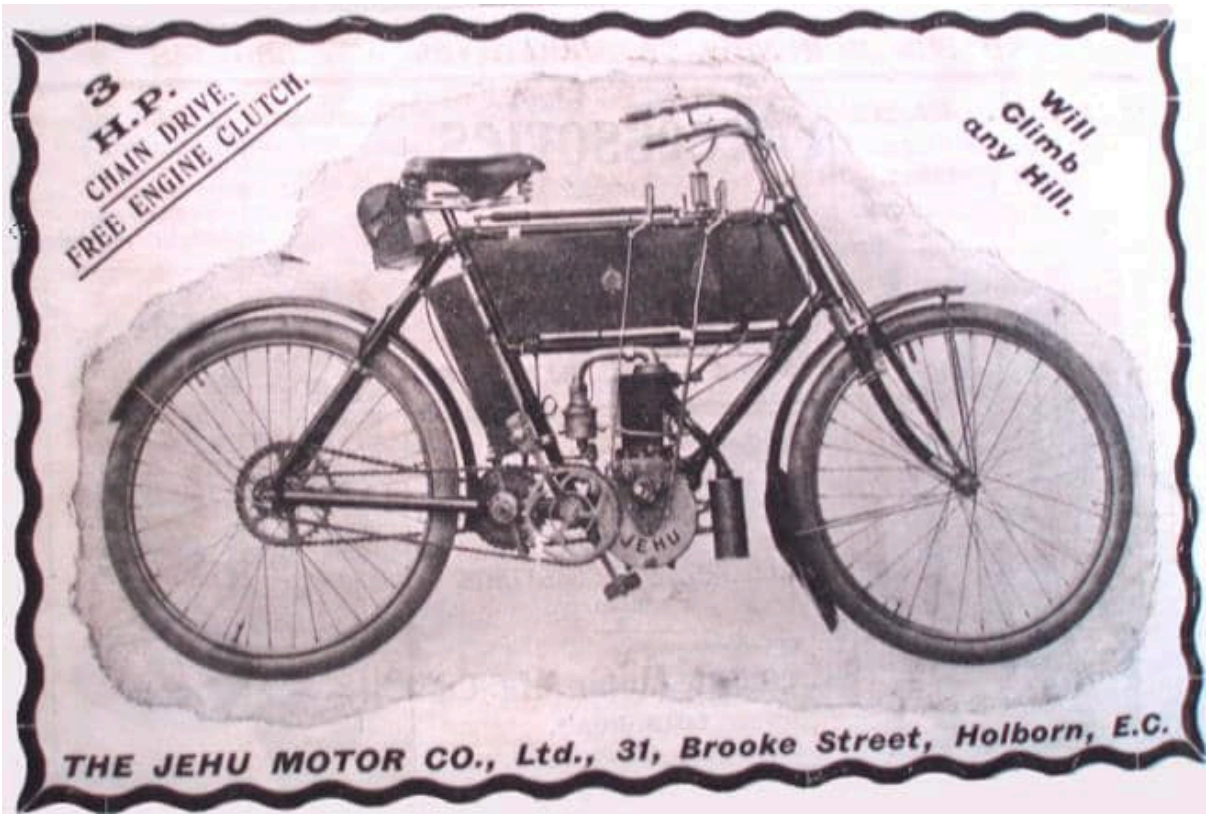
PRICE 15s Post Free.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CHAIN DRIVE.
FREE ENGINE CLUTCH.
Will Climb any Hill.
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FOUR GOOD POINTS

Simplicity of Control.

Reliability. Certificate 1st Class, 1,000 Miles Trial.

High Power with Low Weight.

Free or Water-Cooled Engines, if required.

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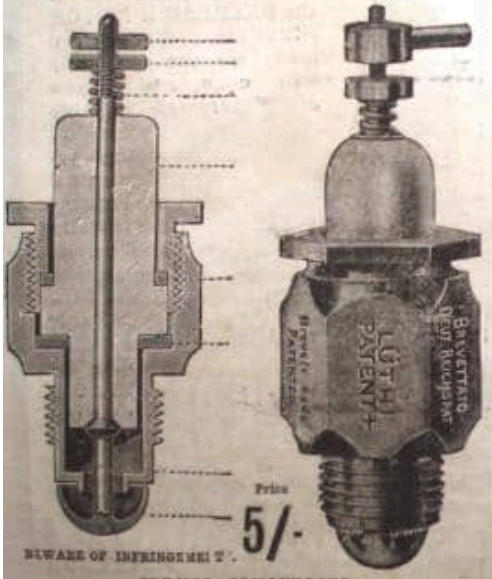

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SPECIAL ADVANTAGES.

A number of sparks are produced between the thin knife edge of the Dome and the head of the Ping, which are claimed to produce a regular and intense explosion. The Ping cannot become fouled through escape of lubricating oil, or carbon deposit, as the interior of the Dome and recess between the top of the porcelain and the head of the Ping is scoured at every explosion. The distance of the Porcelain from the head of the Ping entirely prevents a short circuit.

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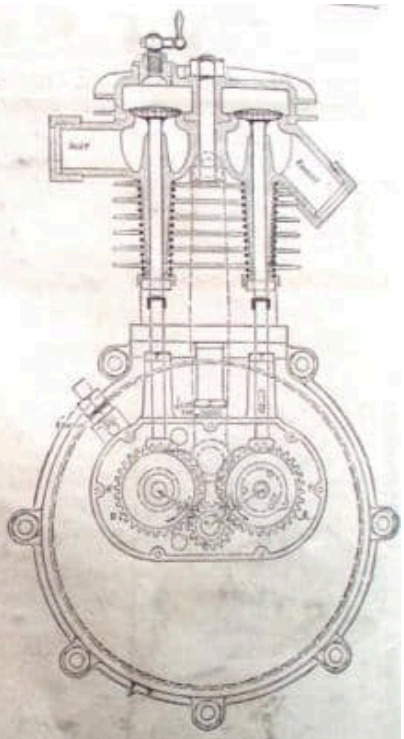
Mechanical Inlet Valve, with our Half Compression Starting Cam, and our Special Removable Valve Box, Long Bearings, Exhaust Lifter, Silencer, and Wipe Contact Maker. These Engines are entirely made by us, and we have all sizes of Engines from $2\frac{1}{2}$ h.p. to 150 h.p. The workmanship on these Motors is guaranteed excellent. We can deliver 500 per month if required.



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Pocock Street, Blackfriars, LONDON, S.E.

KINDLY MENTION "THE MOTOR" WHEN CORRESPONDING WITH ADVERTISERS.

BOILING WATER OR COLD AIR BLAST.

Which is the better cooling for a motor cycle? The "cooling" question is in the forefront, and there is a tendency to apply car practice to motor cycles. The conditions are wholly different. On a motor cycle there are natural limitations of radiating space and water capacity, such that it is impossible, unless you smother the machine with radiators, to provide for sufficient cooling interval between engine and tank. That is why you notice steam being emitted from water "cooled" motor cycles, showing that the water is at boiling point, which is

212 DEGREES.

A motor working at 1,500 revolutions per minute, and with this necessarily limited water and radiating capacity makes the water boil—but this doesn't make for cooling

THE PHOENIX TRIMO

with two speeds, free engine clutch and starting handle, is air cooled assisted by a specially designed fan, forcing, by means of a conductor, a continuous blast of cold air all round the cylinder head, combustion chamber and valves. We guarantee to let our Trimo run with free engine (genuine Minerva) for 15 minutes or more if desired, at the foot of Highgate Hill, which is one mile long, and up which trams have to be drawn by cable, and to then climb the hill with driver and passenger without any sign of overheating. This is the proof we have to offer. This is the test we are giving every day and many times per day. We obviate leaky water joints, we save weight, we make a neat, clean job of the matter, and you don't run any risk of choked radiators, frozen circulation and cracked cylinders. As to the value of our machine,

Our two-speed gear is patent. "Trimo" is our registered Trade Mark. We specially invite them up for the Speed at the Agricultural Hall to call, see and actually try our Trimo. We also have a 2 h.p. Car—still awaiting an order per post—which any call, and made to last.

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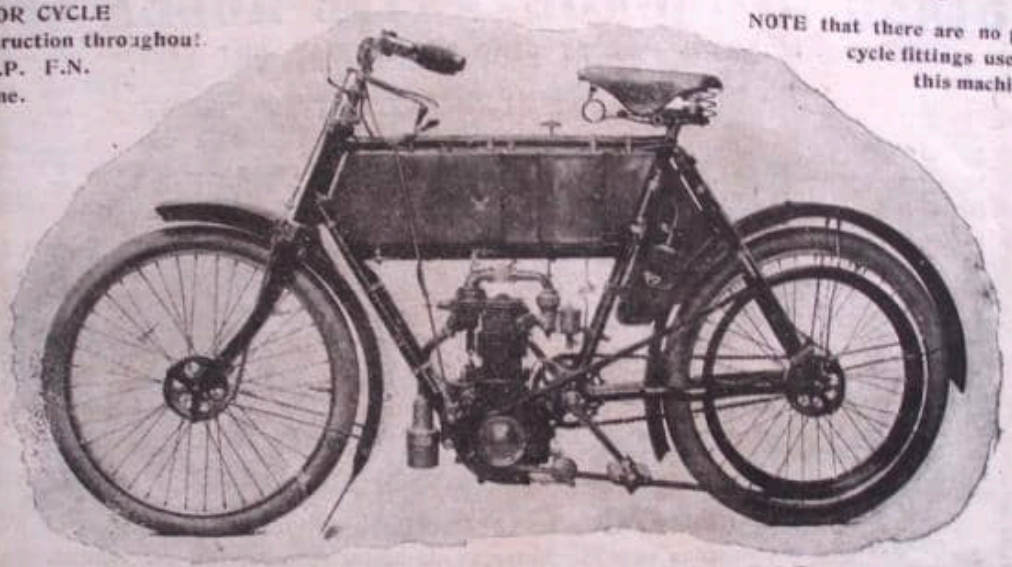
THE Vindec Special Motor Cycle.

MOTOR CYCLE construction throughout. 2¾ H.P. F.N. Engine.

NOTE that there are no pedal cycle fittings used on this machine.



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WOLF MOTORS.

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If fitted with Bowden Control,

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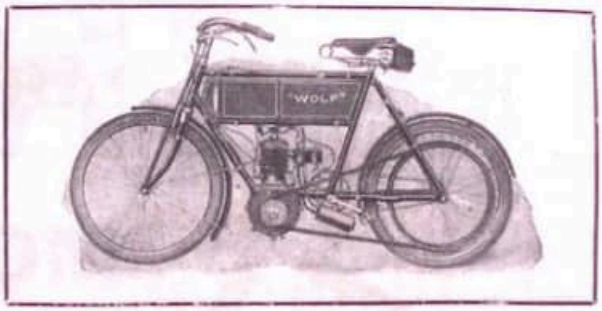
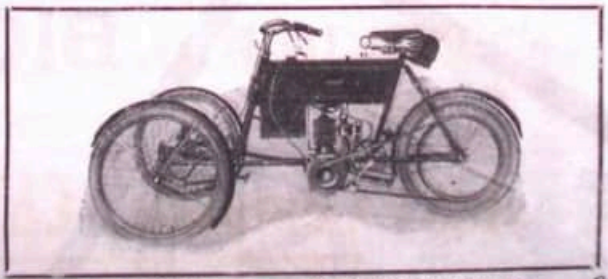
Air Cooled or Water Cooled.

Free Engine if required.





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If fitted with Bowden Control.

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Write for all particulars.

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There looms up in every field a something that not only arouses considerable interest but simply captivates the attention to such an extent as to overshadow those things round about it. Some invention, some new device has struck the popular need and immediately all eyes are turned upon it.
It Answers a Long-Felt Want
Price $35.00
The Miller Triplex Side Seat
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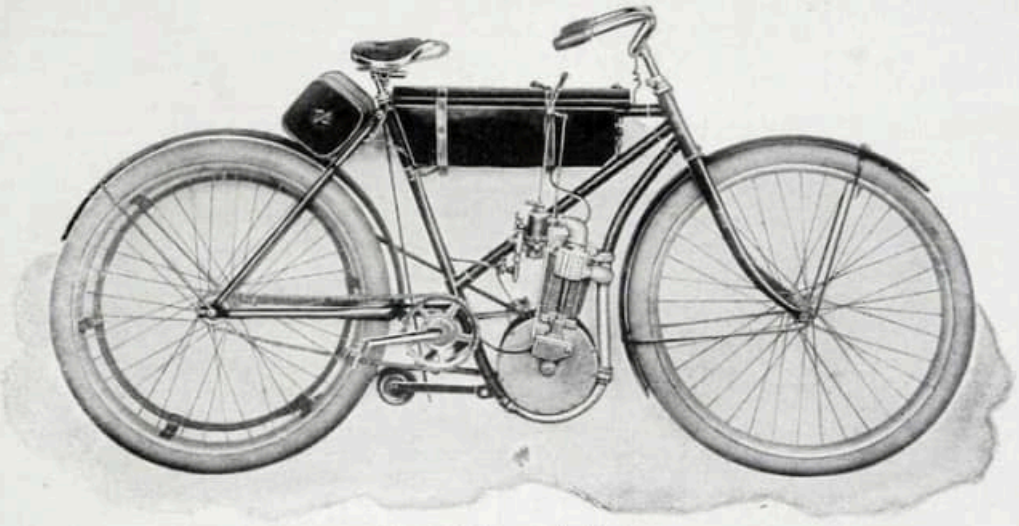

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This Motor, made at the MINERVA WORKS, is put on the market for those who prefer a vertical position.

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MOTOR Cycle, Eadie special frame, Calvert's 2½ h.p. engine, good order, fully licensed; £16, or reasonable offer; seen after 8 p.m. at 44, Stanmore Street, Caledonian Road, N.

3 h.p. Excelsior, just fitted with a new sidecar, with apron, etc., lamps, and accessories, spare inner tube, etc., front forks strutted; £54. — Vincent's Motor Works, Reading.

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£9 10s.—Quadrant, 1¾ h.p., splendid condition; great sacrifice.—Below.

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1¾ h.p. Z.L., French bike, spray carburetter, V belt, fast, handy, accessories; £16.—Lemercier Colman, 23, Nicholl Square, London, E.C.

3½ h.p. Rex, 1904 pattern, in perfect condition, special engine, Watawata belt and pulley; £29.—Lloyd, Victoria Terrace, Leamington Spa.

PHENOMENAL offer, new £50 Beeston Humber motor cycle, 2 h.p., spray, trembler, twin accumulators; £36 10s.—Bennett, agent, Beeston, Notts.

IXION Motor Cycle, 1½ h.p., in perfect condition, back-pedalling and Bowden brakes, and excellent tyres; will accept £9 10s.—J. W. Traill, Blandford, Dorset.

RALEIGH Motor Cycle, 2 h.p., handle-bar control, chain drive, Longuemare carburetter; cost £52, accept £20.—1, Pembroke Studios, Pembroke Gardens, W.

2¼ h.p. 1904 Minerva, Components Co.'s fittings, two accumulators, Palmer tyres, stand, etc.; cost £45 in June, as new; price £32.—Moore, Penylan, Ruabon.

PEUGEOT, 2½ h.p., good hill-climber, takes trailer, Longuemare carburetter, Bowden exhaust, Dunlop tyres, two brakes; £20, near offer.—122, Gipsy Hill, S.E.

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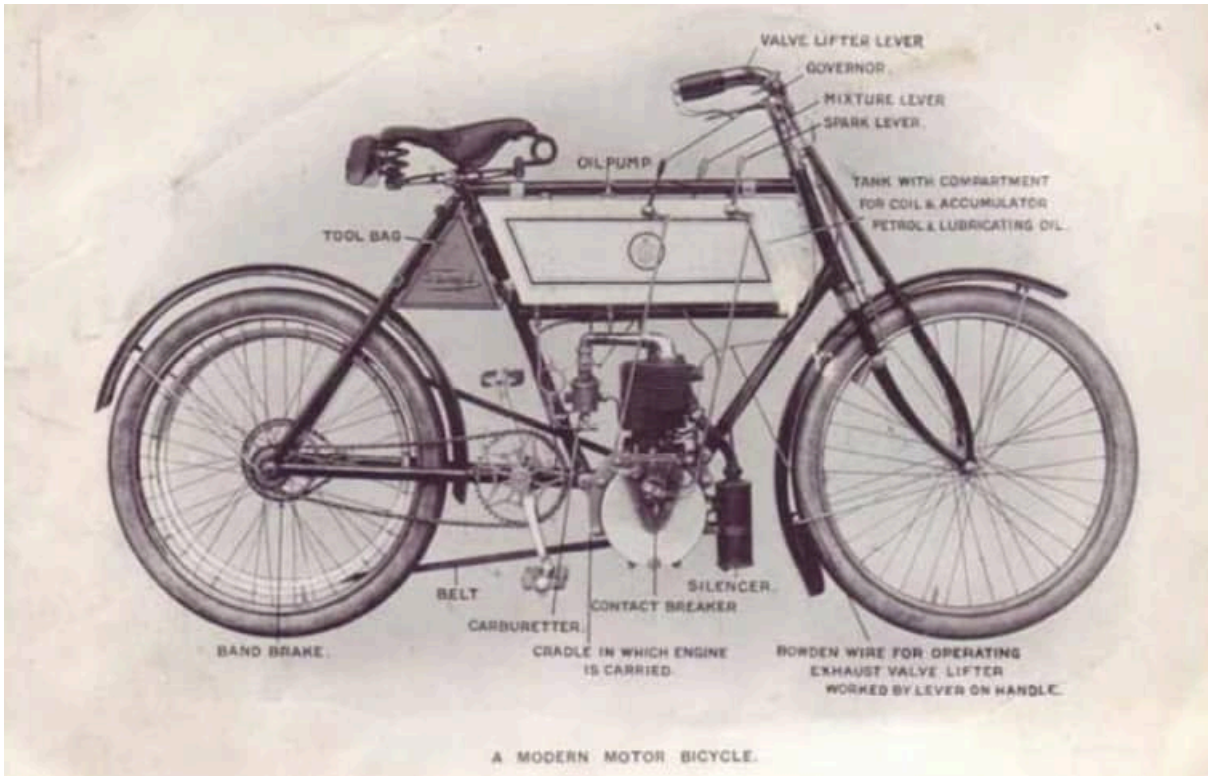
1905

“WE FAILEDTOFIND a single motor cycle at the Stanley Show □ðttedwitha surface carburetter, the spray having at last asserted its undoubted superiority. Therewere no ‘gira□ðe’typesofmotor cycles exhibited, all having low frames with 26in. wheels. Some makers had even gone to the extreme and □ðtted24inwheels, which, however, would not be comfortable unless □ðttedwith large-diaimeter tyres or a spring frame.”

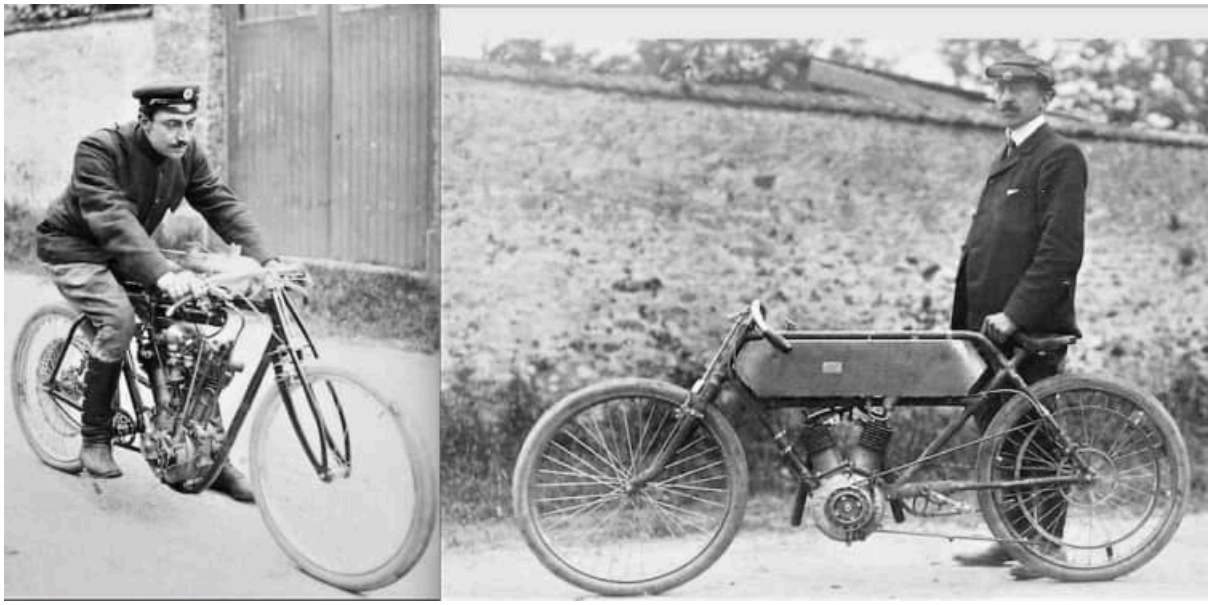


State of play, circa 1905. This example of ‘a modern motor bicycle’ is a Chater Lea—apioneer dating back to 1900.

THEFICM RULESFORTHECOUPEINTERNATIONALEmake interesting reading: note that the bikes had to work as pedal cycles; silencers didn’t have to silence; the 50kgweight limit was clearly seen as impracticable.—and the organisers were taking vandalism seriously: “**1.** The auto-cycle must not weight more than 50 kilos empty, that is without fuel, para□ðisn, accumulators, tools, spare parts, and luggage.An allowance of 3 kilos is made for machines □ðttedwithmagnetos.**2.** Theauto-cycle mushst be entirely, and is everypart, constructed in the country of the Club which they represent (in this case Great Britain and Ireland). **3.** Machines must be □ðnishedwithtwobrakes, either both at the back, or one at the front one at the back.. **4.** Silencers (which may be so in appearance only) must be □ðtted.**5.**Everymachine to have pedals and chain or cardan shaft capable of propelling it without the aid of the engine. (It has been explained that these need only be su□ðicienttopropel the machine for short distances, and their exclusive use throughout controls will not be enforced this year as heretofore.) **6.** The cycles must be ridden by members of competing Clubs, or of Clubs recognised by them (in this case Auto-Cycle Club). **7.** Therace shall be over a road in road a single stage of a distance of from 250 kilometres to 350 kilometres at most. Thisdistance can be selected from town to town, or broken up into going and returning runs or circuits, provided that each journey shall consist of not less than 40 kilometres. **Note:** Themost elaborate precautions as to nails on the

course will be taken this year. The course will be guarded by the military, swept on the eve of the race, and guarded all night be one cyclist and one policeman patrolling every kilometre."

THE FIRST TWO BIKES HOME in the FICM's international motor-cycle cup race were Laurin & Klements, made in Bohemia which is now part of the Czech Republic. L&K would later be acquired by Skoda so, not surprisingly, the victory has gone down in Skoda's o□ðicial history: "…the uno□ðicial world championship took place 50 kilometres south-west of Paris in the small town of Dourdan. For the peak of the motorcycle racing season at the time, the organisers had mapped a 54km circuit which had to be completed □ðve times. It also included three so-called neutralisation sections—in these stretches, the drivers had to push their machines with the engine turned o□ð and hope that they would start up again afterwards. In 1905, the strongest national teams of their time competed in this international competition. In the hopes of representing Austria-Hungary, two riders with motor cycles from Laurin & Klement, František Toman and Václav Vondřich, had entered themselves into a qualifying race in Pacov, Czech Republic. Eduard Nikodém on a Puch came third in the group. The brands Ariel, Matchless and JAP competed for Great Britain; the French two-wheelers



The French team at the Coupe Internationale included Messieurs Tavernaux (Alcyon) and Fauvet (Rene Gillet).

came from Gri□ðon and Peugeot; while Germany sent three Progress motor cycles to France. The strict regulations stipulated that in addition to all the essential components, the tyres also had to come from the respective country of origin. Tyres only lasted for short distances at that time, and the riders themselves were responsible for repairing them. The Laurin & Klement team arrived well prepared: in trials the year before, they had covered the challenging track with nails, which made tyre failures even more likely. And so Vondřich started the race with a heavy leather bag strapped to his back. It contained all the necessary tools and spare parts but also earned the Czech the nickname 'The Travelling Blacksmith' from the spectators. Despite the additional weight and higher centre of gravity, Vondřich with his two-cylinder L&K CCR quickly caught up with the previous year's winner, Léon Demeester, who was in the lead. On the fourth lap, after 246km, the Czech…took the lead. At the □ðnish line, he was more than eight minutes ahead after 3hr 13min 17sec, before the Frenchman was eliminated from the classi□ðcation due to an illegal rear wheel change. As a result, František Toman moved up one place to make a perfect double victory for Laurin & Klement. Only three of the 12 participants managed the full distance."

Václav Vondřich on his Laurin & Klement, in a nicely colourised snap taken before the Coupe Internationale and, right, at the end of the □ðrstlap.

TO GET ROUND the British ban on road racing the ACC staged selection trials for the Coupe Internationale on the Isle of Man as part of the Gordon Bennett car races (the secretary of the Automobile Club's cousin was Lord Lieutenant of the Island). Seven bikes built to comply with the Continental 50kg racing limit started the high-speed reliability trial. Only two made it to the end but a team of three was selected. A local newspaper reported: "It being necessary to open the roads to the public at eight o'clock, the race commenced at three, when a large number of people assembled at Quarter Bridge to witness the start. There were 17 entries, but only seven faced the starter. The course was that of the Gordon-Bennett motor tests, with the omission of Snaefell, which is both di□ðicult and dangerous for motor cycles. The o□ðicial result was declared to Campbell, on an Ariel machine, □ðrst, HA Collier, on a Matchless, second, and Franklin, on a JAP, third, providing the last-named can satisfactorily explain that stoppage made was not due to defective machinery." Some years later ACU secretary Fred Straight shared his memories of the day: "For some reason or other the start had been □ðxed for 3am. The weather at that time, however, was very hazy, and it was decided to delay the start for half an hour. One of the conditions was that machines should not exceed 110lb in weight [in line with the Continental 50kg limit], and it was amusing to see the riders when their machines were put on the scales and found to be overweight □ðling away all possible parts in order to reduce the weight. The rubbers were taken o□ð the pedals, side plates discarded, holes bored in the pulleys and belt rims; in fact, the majority of machines were so weakened that it was not to be wondered at that only two completed the course, viz, JS Campbell (6hp Ariel) and HA

Competitors on the Island for the ACC'sCoupe Internationale selection trials.

Collier (6hp Matchless), the former winning by 1min 16sec over a distance of 120 miles, which was covered in 4hr 9min 36sec. Barnes was one of the competitors in this race. He made a very brilliant start from Quarter Bridge, darting away like a shot out of a gun, but we saw nothing more of him, and it was reported that at the □ðrstbadcornerhe was travelling too fast to get round, so went straight on and in at the door of a cottage." Notable among riders who didn't make the team were Charles Jarrott (6hp JAP), Charlie Collier (6hp Matchless), Freddie Barnes (Zenith), Adrian Conan Doyle (3hp Roc), son of Sir Arthur, who had a □ðnancialinterestin Roc manufacturer AW Wall, and "Rev BH Davies"—Ixion, of course—on his 8hp Westlake. And just for fun, here's Ixion's recollection of the event: "We began preparations in good time, and the eliminating trials to choose a team of three were run o□ðintheIsle of Man on May 29. Nineteen machines were entered, most of which were big twins, despite the 108.5lb weight limit imposed by the French. GA Barnes actually produced a V twin measuring 94x100mm [1,387cc] but it was almost unstartable, and when it got going generally split its pulley or tore the spokes out of its back wheel. Nobody realised that reliability is the □ðrstessentialinracing; the machines were far too 盇ðimsy,andtheengines much too big. Barnes even got a fretsaw and cut a lot of leather out of his tiny saddle. At the last moment the course was altered, as the machines could not manage the two hairpins on the climb from Ramsey up Snaefell. In the race a very poor standard of reliability was shown. Only two machines (Campbell's Ariel and HA Collier's Matchless) completed □ðvelapsbeforethe roads were opened at 8am. The speed was rather less than 30mph. Franklin and Rignold (reserve) on JAPswerechosen to complete the team. Needless to say, we were completely outclassed in the International, which was won by the Austrian Vondrick at more than 50mph."

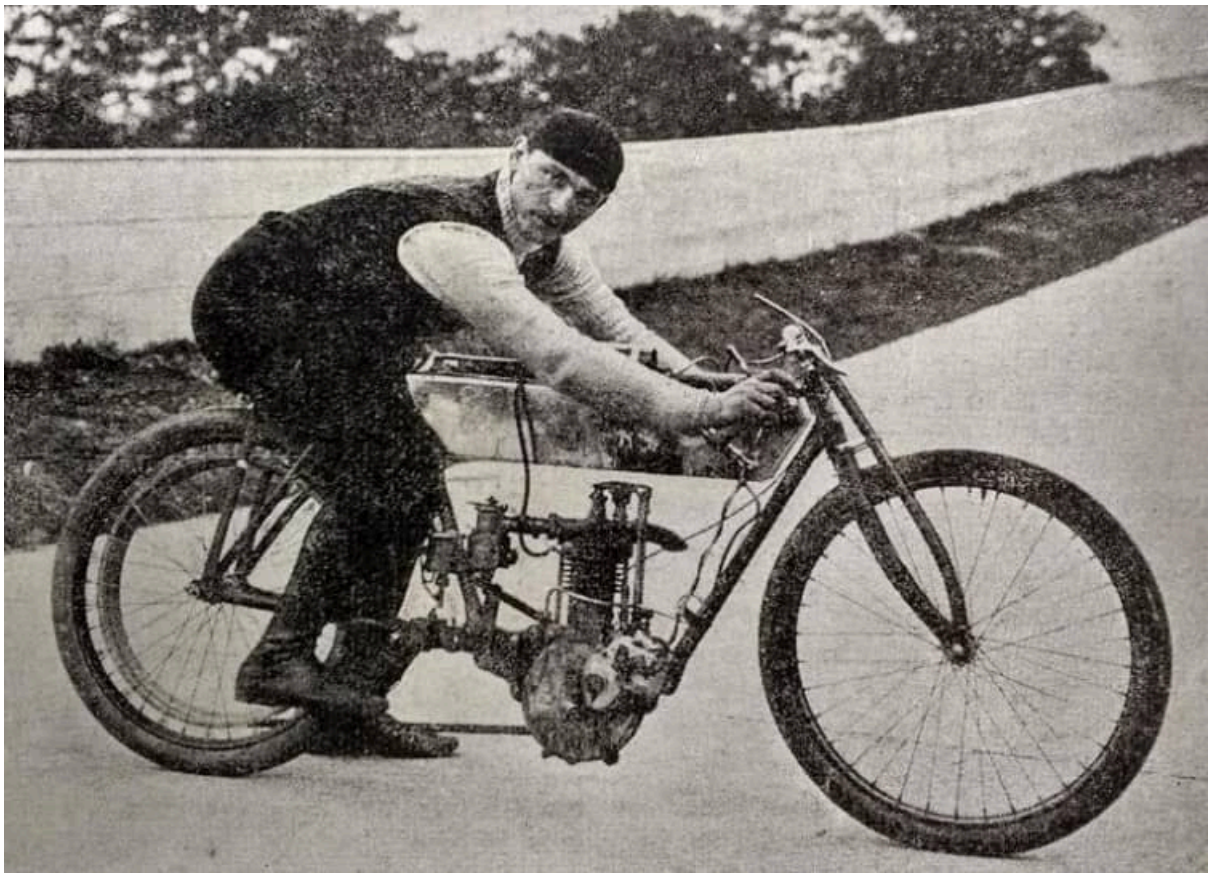
JSCampbell (6hp Ariel), winner of the ACC selection trials in Manxland.

Charlie Collier failed to □ðnishbutbrotherHarry came second—only two bikes completed the trial.

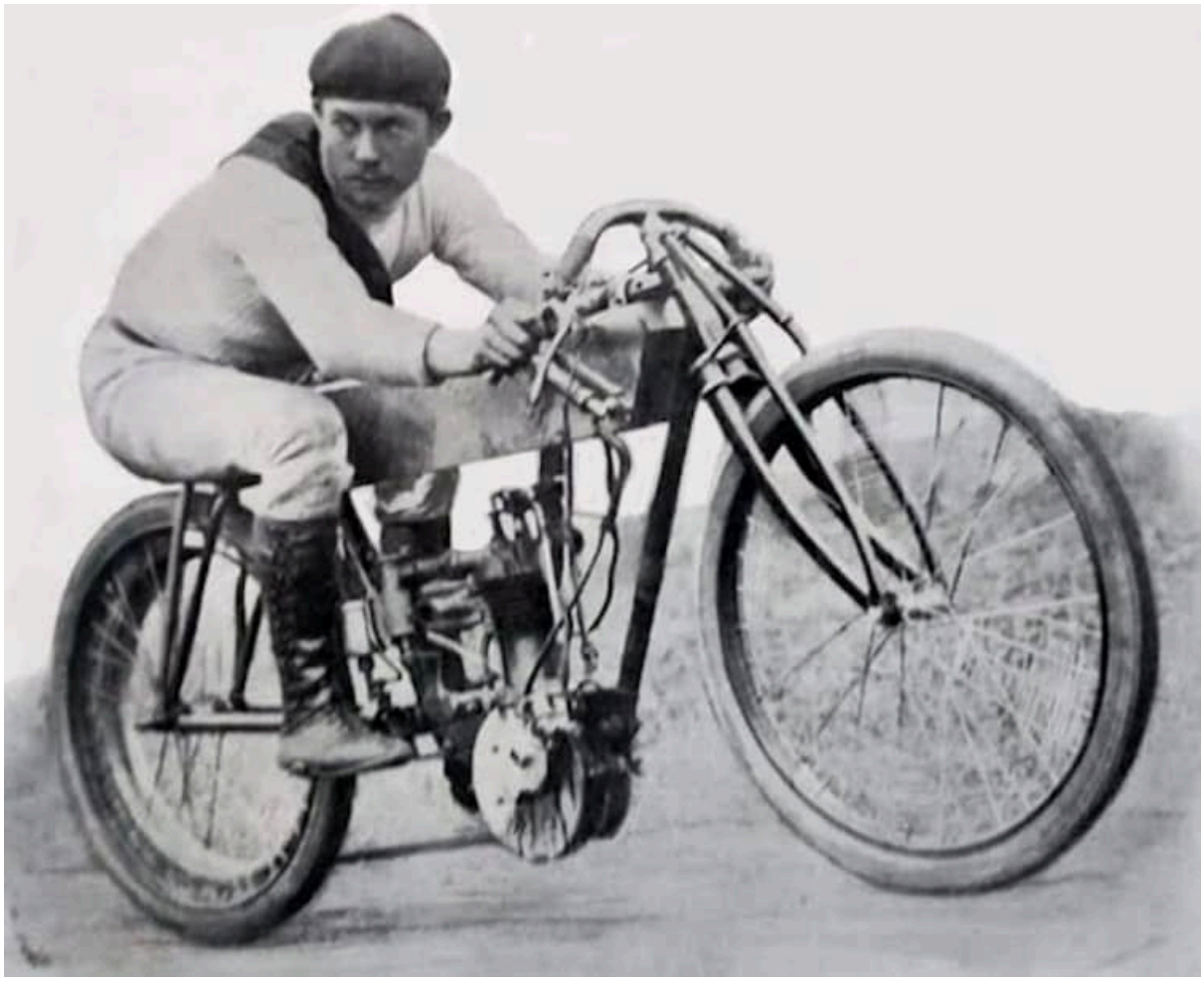
Laurin & Klement won its spurs in the Coupe Internationale but it didn't have the Austro-Hungarian market to itself. As well as 6 and 8hp V-twins Torpedo made this 3½hp 500cc IOE one-lunger.

FROM 1902-1909 MOTORCYCLING ceased production, leading to The Motor Cycle's masthead slogan, "Established in 1903 and for six years the only paper solely devoted to the pastime". But Temple Press didn't ignore motor cycling; The Motor took an interest, as had Illi□de Press's Autocar before the arrival of The Motor Cycle. So we must thank The Motor for the following: "Alexander Anzani, the Italian expert, who recently won the [ïrst] world's motorcycle championship at Antwerp [on an Alcyon powered by a 330cc Buchet single-cylinder engine he developed himself] accomplished a really marvellous record ride at the Parcdes Princes track, Paris, on Saturday last week, by covering 58 miles 489 yards in the hour, and 100 kilometres (62 miles 246 yards) in 1hr 14min 14.4sec, as against the previous bests of Joseph Guippone of 56 miles 266 yards and 1hr 6min 36.4sec respectively. It will therefore thus be seen that a mile a minute for 60 consecutive minutes is within the bounds of possibility, even on a small motorcycle weighing under 50 kilogrammes (110lb), while in endeavouring to reach this end Anzani is actually reach this end Anzani is actually reducing the cylinder capacity, his record ride being accomplished on 90x90mm, whereas with the identical engine 90x110mm dimension the most he could get out of it last year was about 54¾ miles. Unfortunately, the weighing in after the record, Anzani's Alcyon, which was □ttedwithaBuchet engine and Dunlop tyres, was found to be a tri盃eover50kg,andso the record for this latter type of machine still stands to the credit of Guippone, but as the world's bests, Anzani's times are well ahead of previous □gures. During the past month the Italian has been experimenting with the engine, and told the writer that when he summoned the o□icialchronométreurnewtimes would be recorded, and this statement be thoroughly con□rmed. It is generally the second time of asking that these marvellous rides are completed, and Anzani's case proved no exemption, for in his □rstattempt the oiler did not work satisfactorily; but after this had been adjusted everything went like

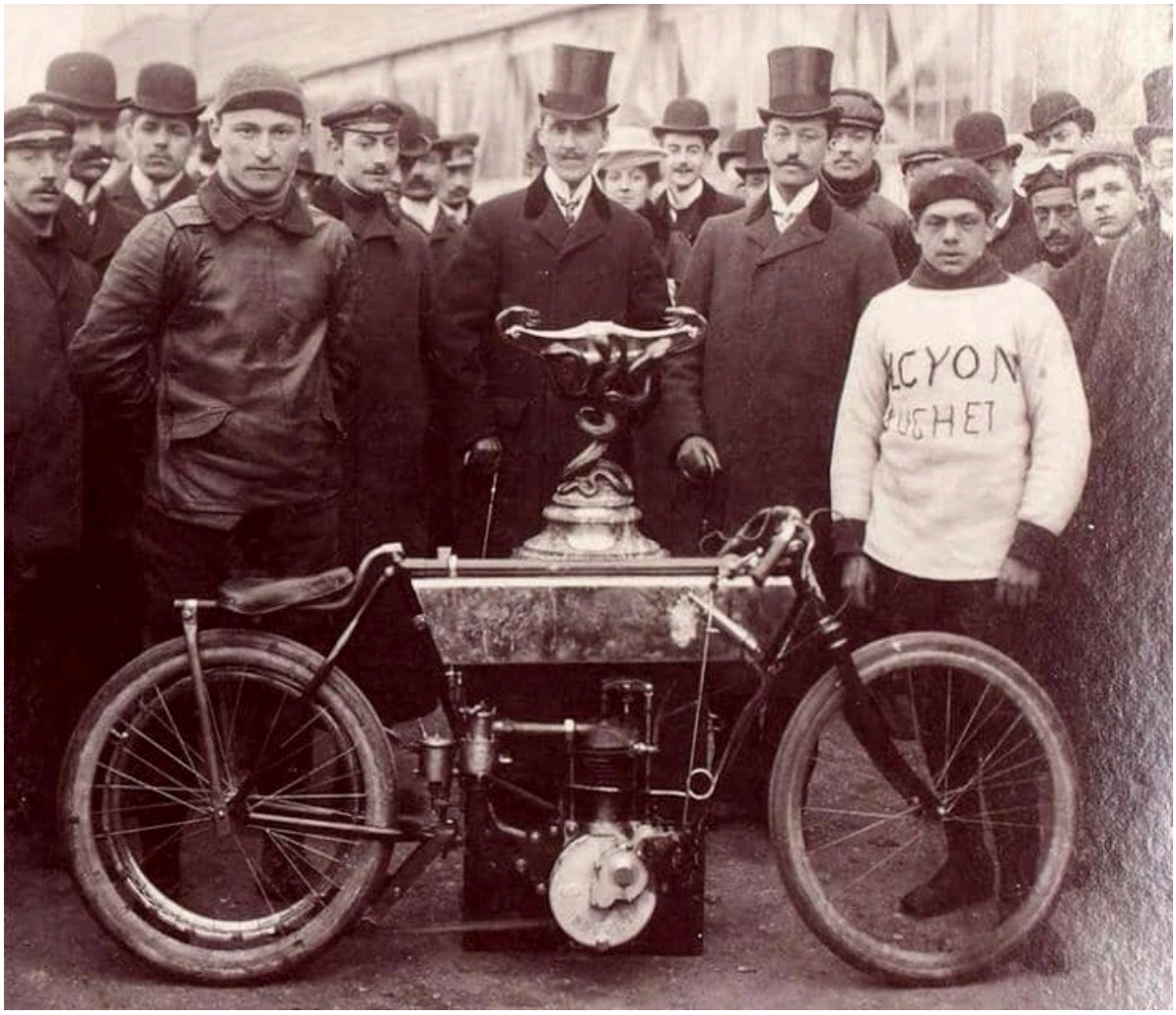
clockwork…Anzani'swonderful ride of over58 miles in the hour is a triumph for the light motor-bicycle."



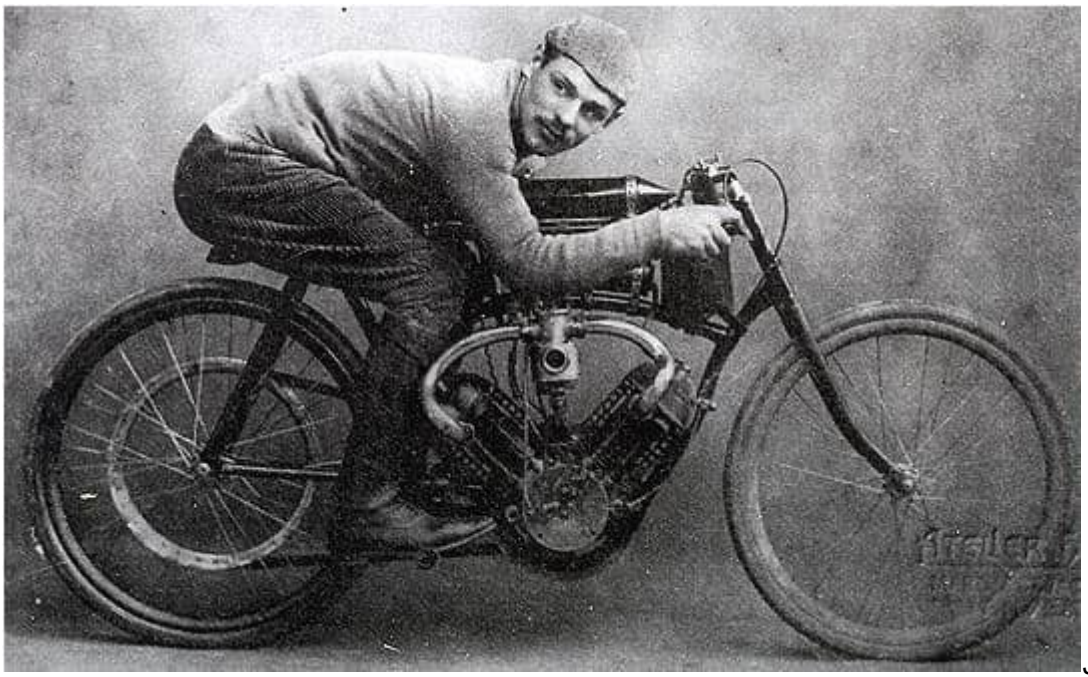
"Anzani and the Alcyon motor-bicycle on which he covered over 58¼miles in one hour." (As a retired sub-editor I have to point out that my counterparts on TheMotor used "motorcycle" in the story but "motor-bicycle" in the caption. Thatwouldn't havehappened in the Blue 'Un.) In any case, AlessandroAnzani, an Italian who lived in France, has his place in motor cycling history as the □ðrstworldchampion.



Here's another shot of Anzani at the Parc des Princes that was simply too good not to share…



…andhere's the prize giving ceremony, complete with top hats and a glorious art nouveau trophy.



Jan Olieslagers rode Minerva's new 7hp, 50kg V-twin in the □ðrstworldchampionship for

motocyclettes at the Parc des Princes, Paris. He won the quali□ðerat63mphbut a snapped crankshaft stopped him in the □ðnal.

THECHATEAU-THIERRY'UPHILLRACE',nowinits 4th year, was paired with the similar late-season hillclimb at Gaillon, with cups awarded for aggregatescores. Theevent was open to touring and racing vehicles from light motorcycles to trucks, in 15 classes. On the day before the race rain made the roads slippery, and the stewards noted that the S-curve after the □ðrststraight kilometre had become too dangerousfor the racing cars so they decided on standing starts in both races (kilometre and mile) except for the ⅓-litre bikes, which ran the 盪ðyingmile.Peugeot entered Cissac, Giuppone and Champoiseau in the two ⅓-litre lightweight events. In the sprint mile race, the eagerlyawaited Peugeot/Alcyonconfrontation was won by Paugeot, with Giuppone beating the previous record set by Collomb (Magali) by three seconds. In the ⅓-litre class victory went to Anzani (Alcyon), followed by Contant (Quentin) and Giuppone on (Peugeot)
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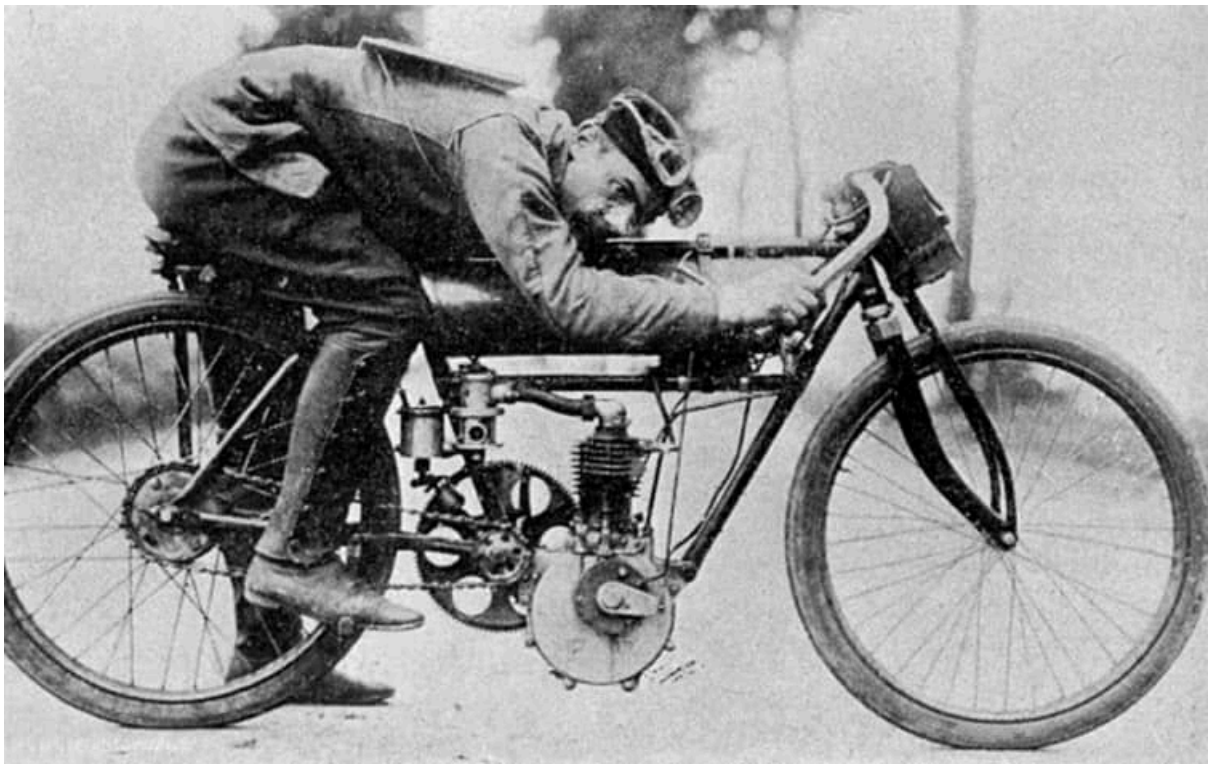
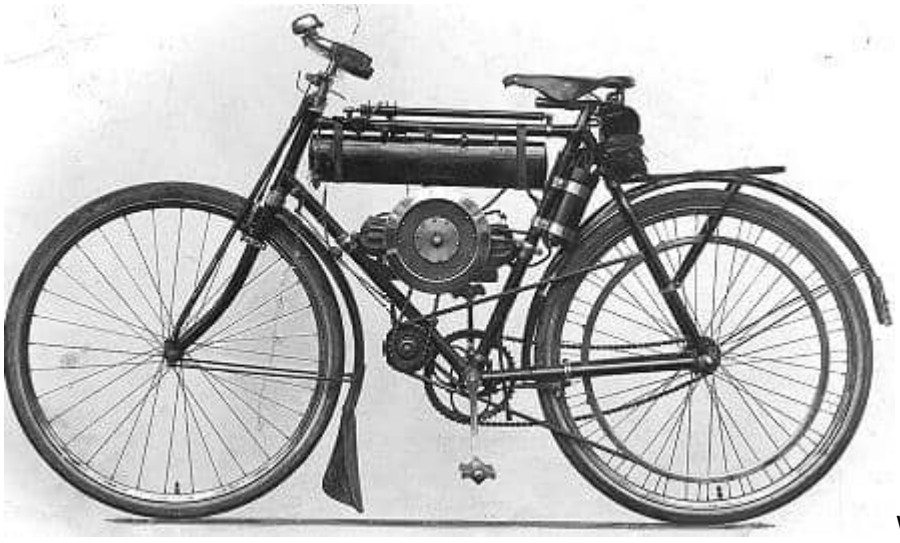


Giuppone on his Peugeotin the ⅓-litre class at Chateau-Thierry.

As these snaps show, Giosu· Giuppone took his racing seriously. The Turin Moto Club's organised the Turin-Colle Serstrieres 87km mountain climb to help develop durable touring machines. The event attracted a dozen entries in the Touring Class from Peugeot, Zedel, Primus, Puch, Fafnir and FN. There was also a single 50kg racer ridden by Giuppone who stormed to victory in 2hr 1min.

JOSEPH BARTER'S LIGHT Motors, which had already produced a conventional single-cylinder engine to power a bicycle, developed a 200cc in-line 盇ðattwin marketed as the Fee (French for Fairy) which was soon anglicised to Fairy. It was (probably) the □ðrst盇ðat-twin. In the USA The Bicycling World and Motorcycle Review was impressed: "Here's a 60 Pound Two Cylinder. Though long a feature of the automobile, so far as known, the two cylinder horizontal opposed motor has never been applied to the motor bicycle prior to the advent of the type shown in the accompanying photograph. This is of English make, and is doubtless the out-come of the great amount of agitation raised over the question of building a really light motorcycle—one that may be carried upstairs by the dweller on the top 盇ðoor who had no other place to store it—and it would seem to be designed to meet the great demand that is prophesied to spring up for such a machine, as its weight complete is slightly under sixty pounds. The 2½ horsepower engine alone weighs but thirteen and one-half pounds, the bore and stroke of the cylinders being 2 3⁄16 inches. The 盇ðywheel is outside, and the engine entire with its mu□ðler is clamped horizontally between the saddle post tube and lower strut of the frame as far down as possible without bringing it out of the level. Immediately beneath it and clamped to the same strut is a countershaft carrying two pulleys and a friction clutch combined. The transmission is by means of a chain direct from the motor pulley to this countershaft, from which the drive is taken to the rear wheel through a 盇ðatbelt. The clutch allows the engine to be started by hand if desired, although the usual procedure is to mount with it out and pedal for a few yards. The clutch is then let in and the exhaust valve dropped, when the drive is said to be taken up almost imperceptibly, the machine running very quietly. As a whole, it presents a rather neat appearance, and apart from the use of an engine of this unusual type for a motorcycle and the addition of a clutch does not embody any of the bizarre features that might naturally be looked for in an attempt to produce a machine to tip the scale at such a low □ðgure. In addition to marketing the machine complete, the power

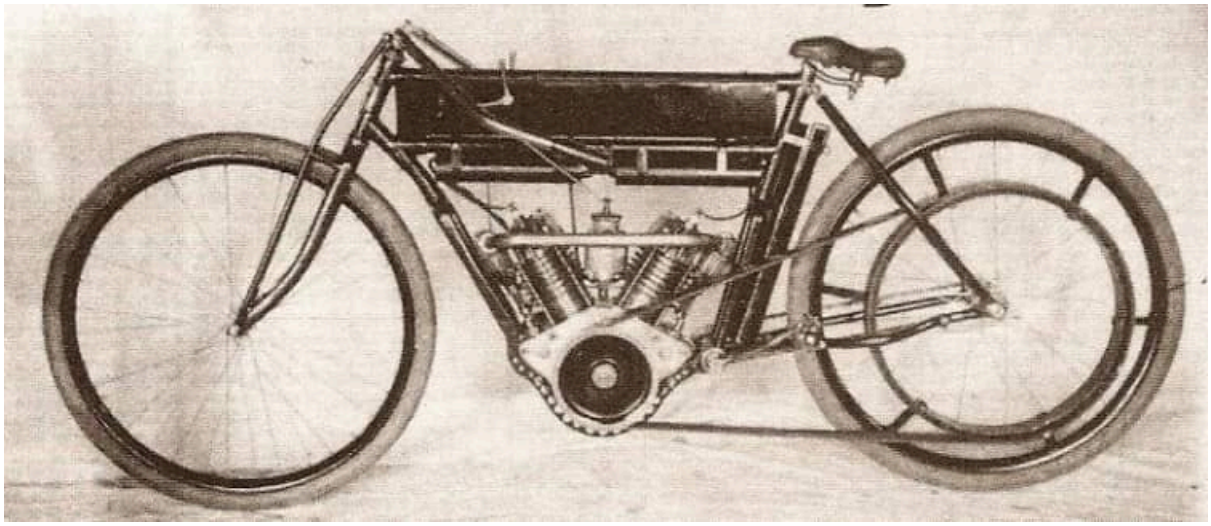
plant will be sold separately for attachment to an ordinary bicycle; also a larger size of the same type rated at 5 horsepower."



Within a year the Fée became the Fairy—and within two years the Fairy became the Douglas.

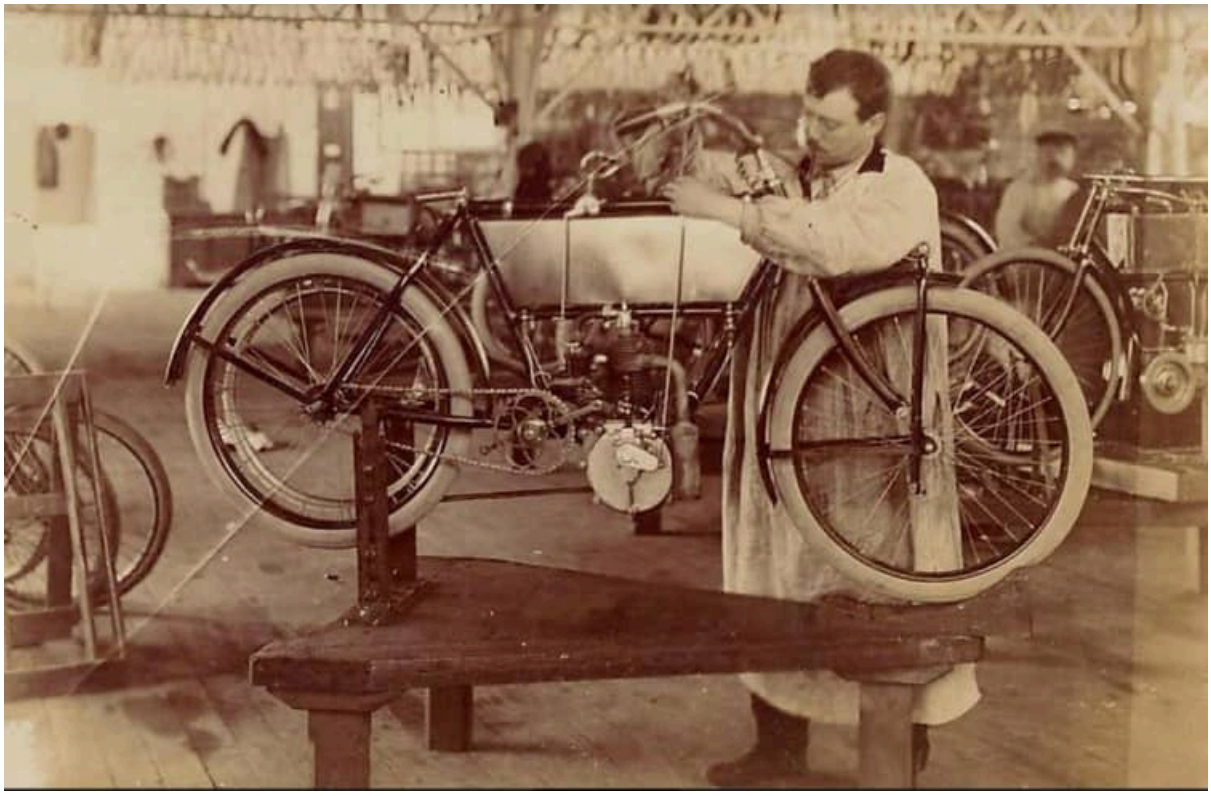
INDIAN CAME UP with a 500cc V-twin. It was a good year for V-twins; they also came from NSU of Germany, Puch and Styria of Austria—and Indian's compatriot Glenn Curtiss. He put his twin to good use by riding it round the one-mile Syracuse dirt track in exactly 61 seconds to set the latest in a series of records.

Indian's V-twin: the □ðrst member of an illustrious tribe.

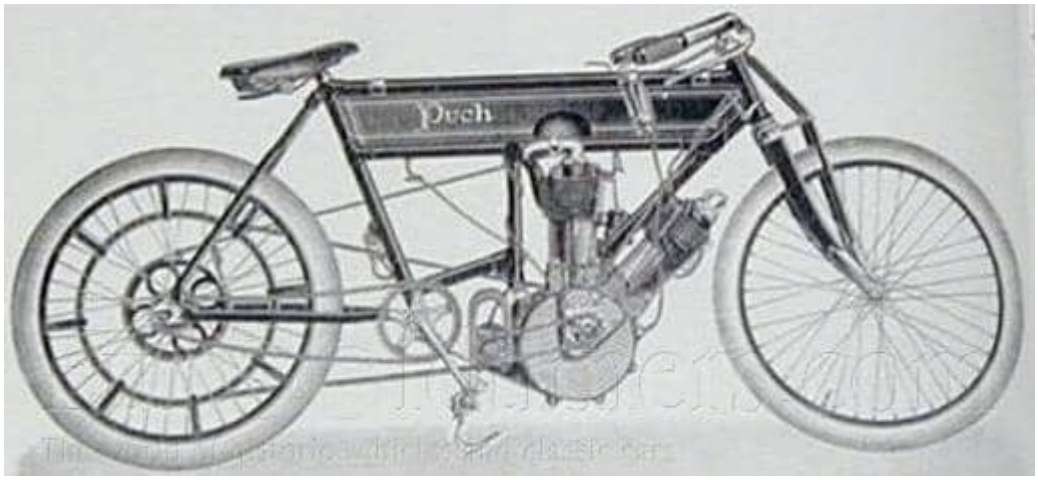


The Curtiss V-twin reportedly had the legs on the Indian.

Peugeot's V-twin oozed Gallic charm.



…andhere's the Peugeot'shome. Thisbeing sur le Continent smocks, rather than boiler suits, were de rigeur.



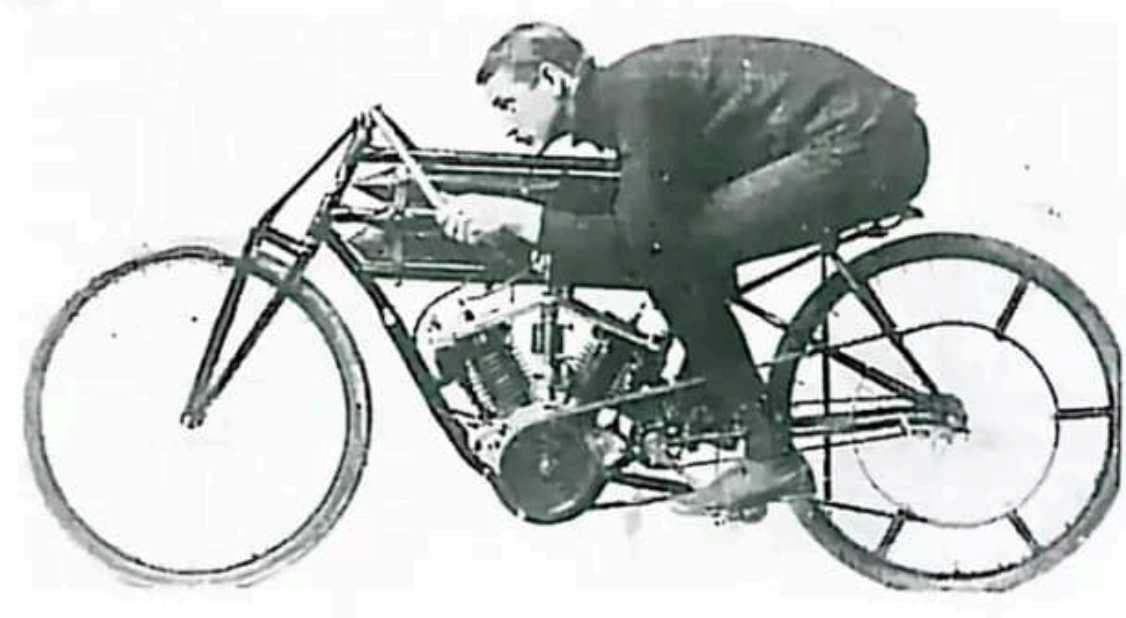
Puch threw its hat into the racing V-twin ring.

Based in Vienna, Bock & Hollander made quads from 1898 followed by a 2½hp motor cycle in 1903 and this sturdy twin in 1905.

Styria set up shop in Austria using 2hp singles and, as pictured, 5hp 764cc V-twins made by Fafnir. Fine looking machines, but the marque only survived for three years.

TWOYEARSAFTERHarleyDavidsonwas launched there were only a handful of Harleys on the road. In a letter to his local paper Arthur Davidson announced that the Harley-DavidsonMotor Co had been formed to 'manufacture motors and motor-cycles'. On 2 JuneWalter Davidson

took a new model, the 442cc 'heavy', to the Wisconsin State Fair horse track where he beat a 316cc Merkel ridden by Henry Zerbel (Indian used the same lump). The next day Walter and Harley's □ðrstemployee,PerryEMack, rode in a three-mile race at the Milwaukee Mile. Mack led his boss home to win at nearly 48mph. The next outing for Arthur, Walter, and Mack was the Fourth of July meeting at Chicago's Gar□ðeldParkwherea series of races were held on the ⅓mile cement oval. Glenn Curtiss opened the event with an exhibition run his V-twin Hercules, covering □ðvemilesin5min 5sec. Walter Davidson then won the 10-mile open and was runner-up behind PerryMack in the 15-mile race. Mack was leading the 10-mile when a dog ran onto the track; he escaped with a gashed head, the dog didn't survive their meeting. Within a few months Mack left to produce his own engines; you can read all about it in 1906.

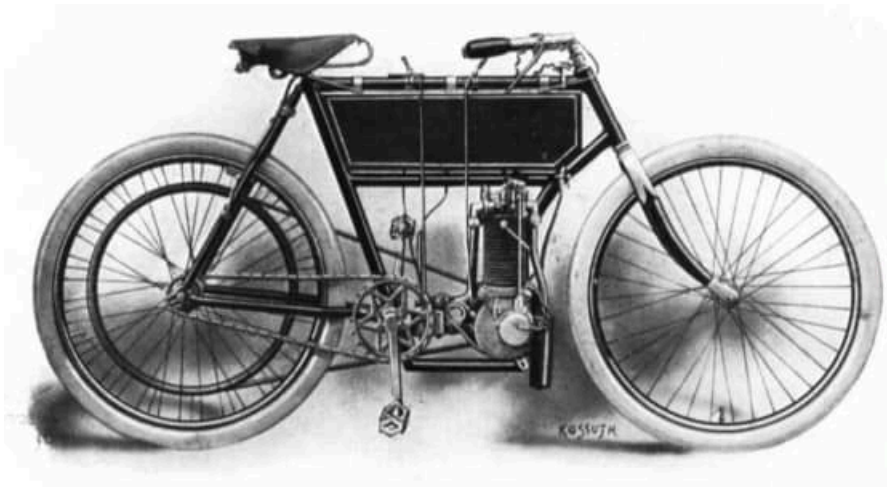


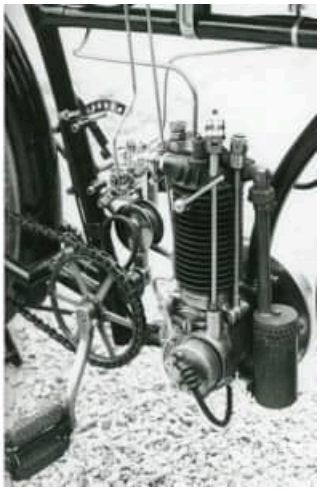
Glenn Curtiss on his 1,000cc Hercules opened the Gar□ðeldParkraceswith a demo run.

Perry Mack, Harley's □örstemployee,pictured with the new 'heavy' behind the Post O□öiceon Wisconsin Avein Milwaukee on 3 June.

When this snap was taken Austro-Hungarian (now Czech Republic) Rösler & Jauernighad been in business for two years; two years later the □ðrmwasdefunct.

Opel was busy turning out sturdy tourers for sensible herren with serious moustaches.

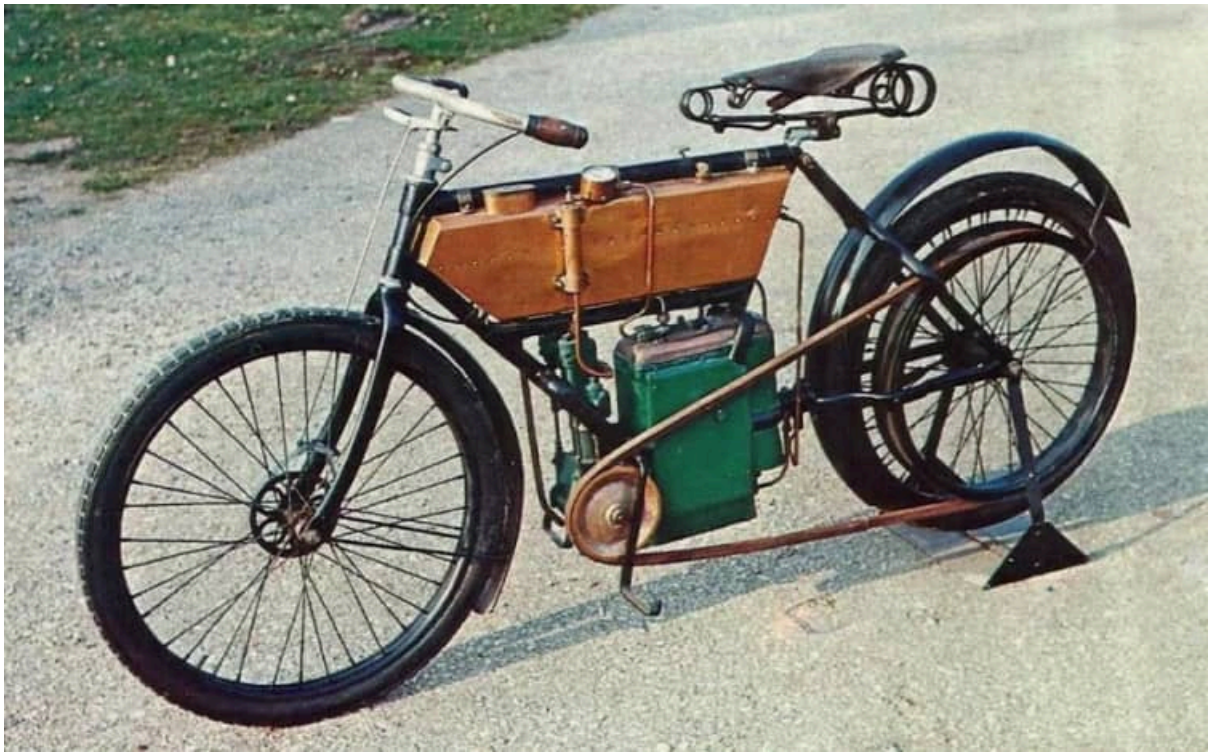




This Clement with its chain and belt has a substantial engine but is still a functional pedal bike.

Before police Harleys (and Hendersons) became ubiquitous these cops rode Thors.

Edouard Cheilus, aboard one of his tricars he produced in Paris using water-cooled Aster-engines. He went on to make light and middleweight two-wheelers.



Paul Buard built this tidy steamer in the Serpollet workshops in Paris, Serpollet being the home of advanced steam cars incorporating the 蛋ðashboilersinventedby the Serpollet brothers. This is one of the last steam bikes to be built; it didn't make it past the prototype stage though judging by the colour pic it might still be out there somewhere.

THEAUTOMOBILECLUBof Great Britain and Ireland staged a week of races on Brighton seafront after local resident Sir Harry Preston persuaded the local council to lay a motor racing track using the newly invented tarmac between the Palace Pier and Black Rock. [Since 1909 this stretch of road has been called Madera drive. It is still the home of the Brighton Speed Trials and was the destination of The Sunbeam MCC's Pioneer Run until 2020 when it switched to Shoreham airfield for safety reasons.] Here's a contemporary acount: "Some wonderful speeds were accomplished by motor cars and motor cycles at the opening race meeting held on the new straightaway Automobile Racing Track laid down on the Esplanade at Brighton, England. The track is 1.25 miles, with a special surface composed of tarmac, which is said to give a perfect surface for automobile racing. Vey fast times were established by the huge racing cars, but…the motor cycle more than held its own. The motor cycle honours were carried o□ðbyH Cissac and H Rignold, both of whom drive 14hp twin cylinder Peugeot cycles weighing under 110lb. The former crack won the open Motor Cycle Mile Race from a 蛋ðyingstartin49.6sec. During the mile he covered a 蛋ðyingkilometrein the astounding time of 26 seconds (World's Motor Cycle Record) equal to a speed of 86mph. Subsequently in a record attempt Rignold converted a 蛋ðyingmilein46.2sec, world's record. Cissac also succeeded in covering a mile from a standing start in the wonderful time of 52.2sec, the previous best being 64sec…Themost interesting items during the Motor Carnival, which spread over four days, were two matches between Rignold on his motor cycle and the Hon AL Guinness on his 100hp Darracq car. The distance was over a kilometre from a standing start. The event created great excitement. At the start the car, with running engine, jumped into a high speed at once, gaining 20 yards before Rignold had his motor □ðring.In30yards the motor cycle was travelling at 50mph. He gradually crept up to the 蛋ðyingDaracq,butfaile fot give away the 20 yards lost at the start. Time 35.8sec, world's record. A similar match was held between Cissac and JEHutton on a 120hp Mercedes

car, resulting in a repetition of the □ðrstmatch. Hutton won by a few yards in a second slower than that accomplished by Guinness. The carnival drew enormous crowds and was a great success."

Cissac (12hp Peugeot) and Barnes (10hp Barnes on the starting line for the □ðnal of the Brighton Speed Trials. Cissac set a world record of 86mph; a couple of weeks later he went to Blackpool and raised the record to 89.5mph. (You'll ïnd a charming eye-witness report of Cissac's Blackpool exploits in excerpts of a talk by ABC designer Granville Bradshaw in 1945—Ed.)

OFFICIAL PROGRAMME AND SOUVENIR.
BRIGHTON MOTOR WEEK

The Brighton Motor Track which is laid down in the Madeira Road is the most magnificent in the world. It has been provided by the town at a cost of £4,000 and is laid with "tarmac" (iron-slag treated with tar and kreosote). The "tarmac" begins at the eastern end of the Terrace and ends at the western end of the Aquarium, and both east and west of it is a good stretch of straight road, while the incline leading to the Marine Parade opposite Sussex Square suggests an ideal flying start.

MONDAY JULY 17th—Military Tournament by the 20th Hussars. Promenade Concert in the Pavilion Grounds at 7.30 p.m. Band of H.M. Scots Guards.

TUESDAY, JULY 18th—Promenade Concert in Pavilion Grounds at 7.30 p.m. Band of H.M. Irish Guards. Organ Recital in the Dome by Mr. W. Norman Roe. Reception by the Mayor and Soiree.

WEDNESDAY JULY 19th—RACES AT 2 p.m. Beach Race for 15 h.p. Darracqs. Promenade Concert in Pavillion Grounds at 7.30, p.m. Band of H.M. 2nd. Life Guards.

THURSDAY JULY 20th—RACES AT 2 p.m. Beach Race for Motor Bicyles, 14 entries, including a 12 h.p. Peugeot driven by Henri Cissac. A 10 h.p. Barnes by G. Barnes, and a couple of Matchless machines by the Brothers Collier. Promenade Concert in Pavillion Grounds at 7.30 p.m. Band of H.M. Royal Scots Fusiliers (with Pipers).

FRIDAY, JULY, 21st—RACES AT 2 p.m. LADIES HANDICAP. Seven entries, for the "Daily Mail" 100 Guinea Challenge Cup. Promenade Concert in Pavillion Grounds at 7.30 p.m. Band of H.M. Royal Horse Guards (Blue).

SATURDAY JULY 22nd—RACES AT 2 p.m. Handicap [illegible] for Touring Cars. Also the Race for the Autocar Challenge Cup. Promenade Concert in Pavillion Grounds at 7.30 p.m. Band of H.M. Grenadier Guards.

BUSS, SONS & CO., Wholesale and Export Tailors [illegible]

Those Edwardians had style, witness this 'programme and souvenir', printed on silk.

And here's Cissac again, surrounded by fans at the start of the Tour de France pour Motocyclettes. He won. Settle down for a contemporary report…

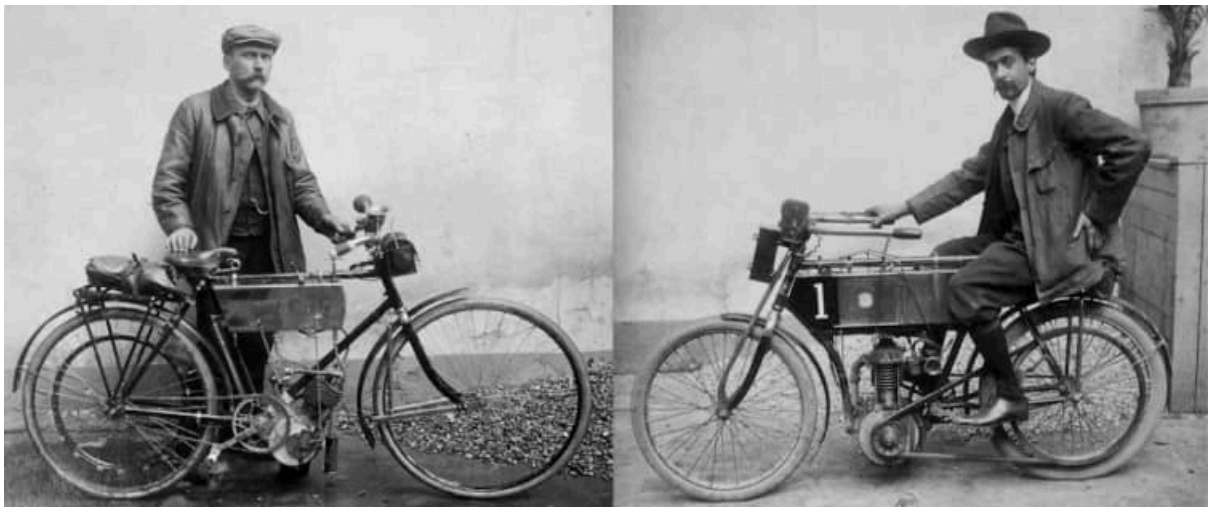
LE TOUR DE FRANCE POUR MOTOCYCLETTES (as distinct from the pedal-pushing o□ðshoot) was staged by the Autocycle-club de France and the newspaper Les Sports under the patronage of the Automobile Club de France and the Touring Club de France. The nine-day time trial was promoted as "a 2,000 kilometre ordeal, the biggest and toughest that has ever been imposed on the motor vehicle…a colossal test". Judging by the statistics that wasn't entirely Gallic hyperbole—of seven riders in the 225cc class two completed the course; there were 38 starters in the popular 'one-third litre' 333cc class, and 14 □ðnishers; and only one of the nine 500s completed the Tour. Here's a taste of the action, courtesy of Les Sports' sister magazine, La Presse. "Day 1, Paris-Auxerre-Dijon (319km), 5am-4pm: Pouring rain, wind, soggy and slippery roads. The bad weather continues to rage; it will make the task of the competitors in the Tour de France on motorbikes quite painful, and one wonders how these frail vehicles will even manage on the long and di□ðicult route that has been imposed on them. [Best time] Tiercelin (Alcyon), 4hr 16min. Day 2, Dijon-Macon-Saint Etienne (250km), 6am-5pm: The day was better, the rain that had accompanied the riders from Paris to Dijon □ðnally left them behind and if there were some threatening clouds at the start of Dijon, it was in superb weather that the □ðnish was made in Saint-Étienne. Giuppone (Peugeot), 3hr 22min. Day 3, Saint-Étienne-Montélimar-Avignon (225km), 6am-3.30pm: Heavy rain and slippery roads, particularly on the 'Côte de la République between Saint-Étienne and Bourg-Argental. All the competing machines showed extraordinary durability, and an example must be given, that of Mallet, to demonstrate this: he did, in fact, following a skid in the Côte de la République, an extraordinary somersault, which sent him tumbling down the embankment of a ravine about □ðfty metres deep. The man was unharmed and so was his mount, as they were both checked in the evening at the □ðnal stage. During the second part of the stage, from Valence to Avignon, the rain was still falling! Not for a moment did

it show mercy to the Tour de France riders, and it was in the rain that they arrived in Avignon, whose city walls, despite the weather, were covered with people. There is no need to say that the event organised by our colleague, Les Sports, is a colossal success and fascinates all the towns and regions through which it passes. Day 4, Avignon-Marseille (110km) 7am-noon: Overcast and dry, mistral wind at the back. Day 5,

Giuppone (Peugeot) won the second day and □ðnished runner-up behind his Peugeot team-mate Cissac; he also won the 'level-kilometre' dash.

Marseille-Nîmes-Narbonne (279km) 6am-4.30pm: Mistral on the side…Yesterday, the fourth day of the Tour de France motorbike race, was relatively a day of rest for the competitors; the course, in fact, which was covered in a single stage, was only 110km long, and if the sun of the Midi did not deign to join in, at least the mistral, a good boy, had the sense to blow all the time at the competitors' backs, thus coming to their aid and notably increasing their speed. All the competitors, that is to say the 23 motorbikes that arrived in Avignon the day before and left from this town in the morning, reached Marseilles without any trouble. No accidents, only two incidents: Faivre, who ran over a dog, and Lemétais, who hit a level crossing barrier. The two robust little machines resisted wonderfully and their riders were able to continue on their way, after examining their mounts, as if nothing had happened…Having set o□ðfrom Marseille, the valiant competitors of the Tour de France found the mistral again from the very □ðrst turns of the wheel; but, this time, instead of helping them, this damned wind started to take them by the scru□ðof the neck, taking them o□ðtheir saddles at times and almost throwing them into the

ditches. This is how Mignard smashed his engine against a badly placed paving stone, which forced him to retire. It was Nîmes (131km) that was the goal of the □ðrststageofthe □ðfthday.To describe the enthusiasm of the people of Nîmes is almost impossible; it was amidst cheers, 'Vive Les Sports! Long live



Faivre (Terrot) □ðnishedsecondinhis class but was last in the hillclimb. He also ran over a dog. (Right) Mauger with his Laumaudiere-Mauger—he was among the majority who failed to □ðnish.

Thomas! Vive Cissac!' etc, that the riders arrived, for in Nîmes, people are very sports-minded and follow with passion the reports of the great events. Narbonne (279km) is the goal of the stage of the □ðfthday.Thecontrol, set up in the Capitole café, was invaded well before the time □ðxedfortheopening by a huge, turbulent crowd which shouted, gesticulated, discussed and which, as all along the route, snatched up the issues of our colleague Les Sports, to read the details of the race of which they were spectators. The □ðrstarrivals,greywith dust, are enthusiastically cheered and accompanied to the garage,wherethe machines must spend the night. Day 6, Narbonne-Toulouse-Agen (273km), 6am-4.30pm: Dry weather, dry roads. Narbonne woke up earlier than usual to celebrate one last time before their departure the courageous competitors of the great Tour de France for motorbikes, organised by our colleague Les Sports, with a care which makes this competition one of the most interesting and remarkable manifestations of the automobile. Of the twenty-three riders who left from Marseille, only two withdrew and the 21 others got into the saddle at seven o'clock in the morning to set o□ðforToulouse, the goal of the □ðrststageofthis sixth day. The weather was favourable, the roads dry and smooth, and our men happily covered the 150km that separated them from the capital of Languedoc. There,indescribable ovations were to receive them; it was necessary to have an important service of order to maintain the crowd of enthusiastic spectators, who all wanted to see the competitors of the Tour de France on motorbikes. At the exit of Toulouse, Messrs Audist·re and Richard, o□ðcialtimekeepersof the Automobile-Club de France, always faithful to their post, took the times of the level kilometre, which Giuppone won in 51⅖sec which set the world record for motorbikes of one third of a litre on the road. When one considers that Giuppone's machine has just run for six days in a row, with a daily averageof 250km, one can be really proud of the progress that French industry has made in this marvellous little motorised machine that is the motor cycle. Day 7: Agen-Bergerac-Limoges (271km), 6am-4.00pm: Beautiful weather, dry roads. Day 8: Limoges-Châteauroux-Orléans (263km), 6am-4pm: Strong wind, freezing cold, bad roads. Theseventh stage took place yesterday in splendid weather. Theworld record for the kilometre was beaten by Thomas, in 48⅘sec, ie at more than 70 per hour. Early in the morning, the competitors went to the central

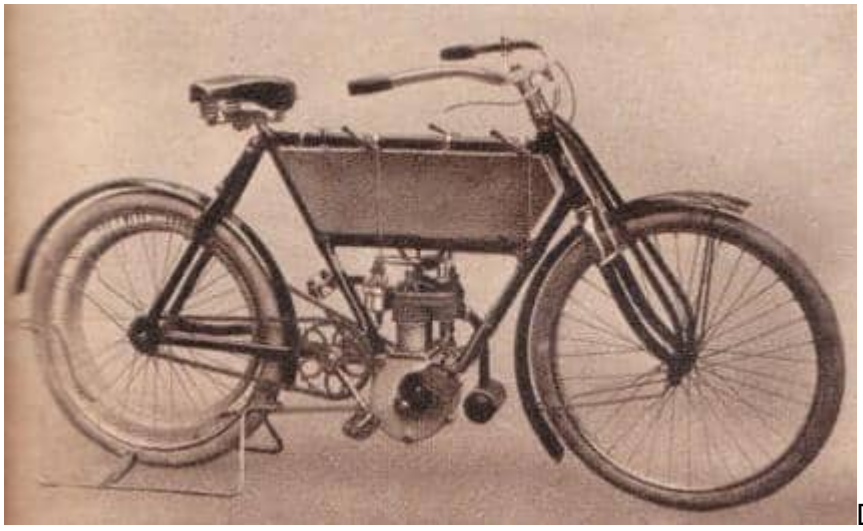
garage,where the start was to take place, and checked their machines one last time before setting o□ð.Aseveryday, the Phoenix-Trimo tri-car starts □ðrstat6o'clock in the morning, followed at 6.30am by the quarter-litre motorbikes and at 7 o'clock by the third-litre motorbikes. Nineteen riders presented themselves under the orders of the starter. Le Métais, who was unwell, retired. The stage from Limoges to Châteauroux (124km) was, according to the unanimous opinion of the valiant riders, the most di□ðicultofall those they had ridden so far. The road was very hard and very uneven, which delayed their march somewhat. A violent wind and a bitter cold did little to increase the di□ðicultyofthis arduous journey. Out of 19 starters from Limoges, 17 arrived within the prescribed time limit. Only Faivre,on whom the jinx seems to be particularly strong, and van Hooydonk arrived after the expiry of these deadlines. Faivre punctured three times, and the English team nine times. Thelatter holds the record for punctures so far. Van Hooydonk's team-mate is collecting nails that he wants to take to England as a souvenir of the Tour de France. Orléans, the goal of the penultimate stage, is a sporting city par excellence. Also, it is in front of several thousands of onlookers that the arrivals took place, in spite of the distance of the control installed at the octroi of the Manill·re. All the competitors are in great spirits, with only 128km to go, and they will □ðnallyreceivethewarm ovations from the Parisians that are their due after this wonderful event. Day 9: Orleans-Ville d'Avray (128km) 9am-2pm. The Tour de France organised by the Autocycle-Club de France and the newspaper Les Sports is over. Seventeen competitors have completed the course, o□ðeringthebest average regularity ever found in a competition. As this was the toughest competition ever attempted, it is easy to see the logical conclusion to be drawn. Themotorbike had played a game that was all the bigger because it was more public. The

The two Minervas □ðnished4thand7th, ridden by messrs Blatgé and Schweitzer respectively. Which of them is pictured? Your guess is as good as mine.

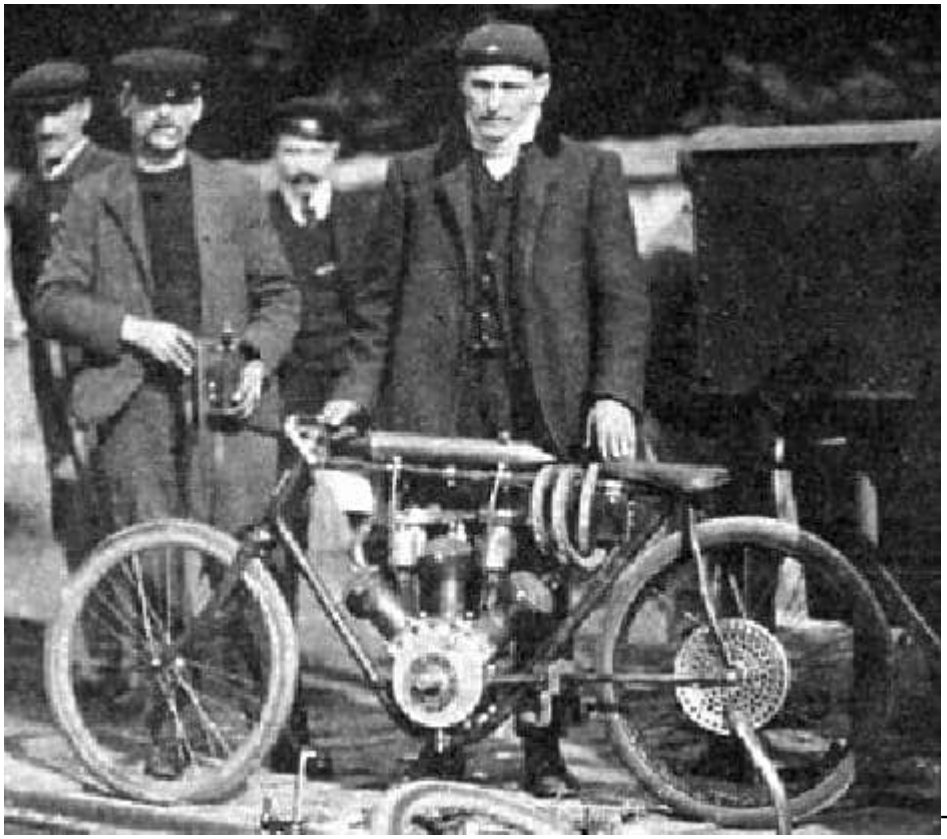
whole of France, and especially the thirty departments crossed, the 400 towns which had seen the…small squadron of motorcyclists parade by, followed this audacious attempt with an attentive mind, ironic at the beginning, enthusiastic at the end. It succeeded, even beyond what one could have wished. The motorbike, the small practical machine, because it is simple and cheap, won its grand touring licence in a week. It now has it; it is known that it can be counted on, and it has, as a result, won over to itself and to the cause of the automobile the innumerable armies of small purses. The □ðnalclassi□ðcation, naturally subject to the o□ðicial approval of the committee, is as follows—333cc class: 1, Cissac (Peugeot), 1212 points; 2, Guippone (Peugeot), 1200; 3, Bucquet (Gri□ðon), 1192; 4, Blatgé (Minerva), 1183; 5, Champoiseau (Peugeot), 1168; 6, Bonnard (Werner), 1151; 7, Schweitzer (Minerva), 1146; 8, Thomas (Magali), 1129; 9, Foulon (Brùneau), 1107; 10, Lepetit (Stimula), 1098; 11, Can·sse (Lamandi·re-Mauger), 973; 12, Contant (Werner), 953; 13, Platel (Stimula), 925; 14, Yourasso□ð(Peugeot), 883. 225cc class: 1, Dacier (Clément), 803; 2, Faivre (Terrot), 632. 500cc class: 1, van Hooydonk (Phœnix Trimo), 783. Thus ends the toughest endurance race to which motorbikes have ever been subjected. The classi□ðcation of the Peugeot team provided an excellent indication for the choice of a real motorbike, a touring motorbike. It should be noted that in each of the nine stages it was Peugeot that held the lead, with Cisaac, Giuppone and Champoiseau, and if we consider that Cissac and Giuppone are □ðrst and second by twelve points, is this not the best proof of the regularity of the motorbikes of the great manufacturers of Valentigney? The times for the uphill kilometre were taken in the Côte de Dourdan, by Messrs Audist·re and Richard, o□ðicial timekeepers of the ACF. Here are the results: 1, Thomas (Magali) 1min 31⅗sec; 2, Giuppone (Peugeot), 1min 32⅗sec; 3, Cissac (Peugeot), 1min. 45⅕sec; 4, Schweitzer (Minerva), 2min 7⅕sec; 5, Canisse (Lamaudi·re-Mauger), 2min 7⅗sec; 6=, Bucquet (Gri□ðon) and Bonnard (Werner), 2min 9⅕sec; 8, Champoiseau (Peugeot), 2min 10⅖sec; 9, Le Metais (NSU), 2min 13⅘sec; 10, Foulon (Bruneau), 2min 19⅗sec; 11, Blatgé (Minerva), 2min 25⅘sec; 12, Yourasso□ð(Peugeot), 2min 28⅘sec; 13, Lepetit (Stimula) 2min 30⅘sec; 14, Contant (Werner) 2min 51⅖sec; 15, Dacier (Clément), 3min 17sec; 16, Van Hooydonk (Phœnix-Trimo), 3min 21sec; 17, Faivre (Terrot), 3min 21⅕sec. The length of the climb…was 1km 350, including 200 metres of cobblestone after a di□ðicult bend. There was a strong headwind."

Joseph Van Hooydonk, a Belgian living in North London, started to produce Minerva-engined Phoenix motor cycles in 1900. His 4½hp Phoenix forecar was the only machine to □ðnishinthe 500cc class; Hooydonk's chau□ðeurwassaidto be collecting nails to take home with him having repaired a record-breaking number of punctures.

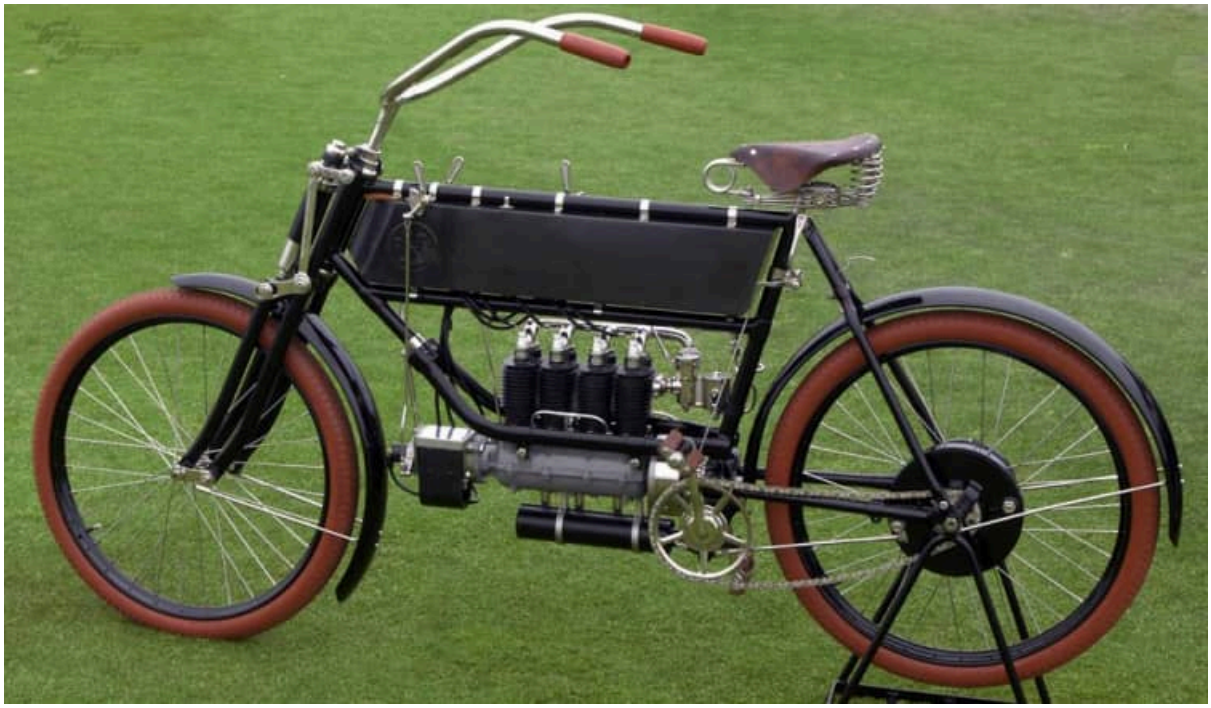
NOTALL TWINSwere of the V-persuasion. The Paris Show featured vertical twins from Werner and Bercley (a new Belgian marque) and a 363cc in-line four from FN with a Simms-Bosch high-tension magneto, shaft drive running through a frame tube, leading link forks and a drum rear brake.



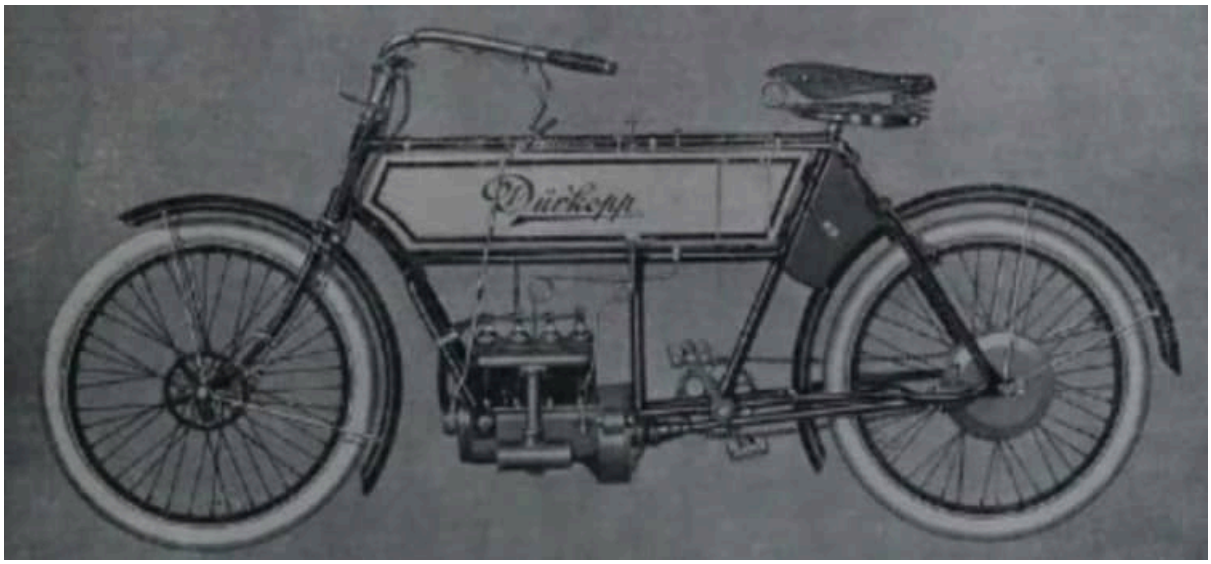
Decades before the Brits embraced vertical twins the old □ðrm,Werner,ledthe way.


Two cylinders clearly weren’t enough for Alessandro Anzani. His V3 design also powered aeroplanes.

As this survivor shows, the Anzani V3 was a purposeful lump.



Three pots good, four pots better? The Belgian FN would be in production for nearly 20 years.



Germany was also in the four-pot bike business, courtesy of Durkopp…

…but the Jerries weren't short of singles. Brennabor had set up in business in 1902, using Zedel and Fafnir engines before developing their own.

THE AUTO FAUTEIL DEBUTED with small wheels, an enclosed (427cc) engine mounted below the 'fauteil' (armchair) and an open frame – in essence the ancestor of the motor scooter.

SWISS ENGINEER ALFRED BÜCHI patented a "highly supercharged compound engine" incorporating an "axial compressor, radial piston engine and axial turbine on a common shaft". The pump was tyo be driven by exgaust gas so this marks the birth of the turbocharger. The idea of precompressing the air suppliedf to an engine was as old as the combustion engine— Gotleib Daimler had a go in 1885, as did Rudolf Diesel in 1896. Judging by Büchi's drawings it would have worked too, but he was ahead of his time; superchargers would have to wait for the right fuel and materials.

THE FIRST SPEEDING FINE ISSUED in Western Australia resulted from speed limits drawn up by Perth City Council only weeks before: 4mph at crossroads, 10mph on three nominated streets and 15mph elsewhere. Arthur Spalding, the charge alleged, had "furiously ridden a motor-bicycle"; he was □ðned 18 bob with 2d costs.

THE LAUNCESTON MC was set up in Tasmania and it's still going strong today—it controlled motor cycle sport on the island until the ACU of Tasmania took over in 1958.

THE AUTO-CYCLE CLUB, as Ixion noted some time later, "was beginning to wrest the reins of development fro the MCC" and staged a 750-miles Six Days Trial: 31 bikes started, 21 □ðnished and six won gold medals. The course included Birdlip Hill which was scaled by one superman on a single-speed 5hp Ariel trike "which was forced up the long ascent by a determined rider

with super leg muscles". But two P&Msastonished the competition by cruising up thanks to a two-speed transmission—"goggle-eyed men, lying purple-faced and panting by the hedges half-way up Birdlip, stared incredulously at the machines as they climbed steadily under their own power". AJWilson, author of the seminal Motor Cycles and How to Manage Them, presented a prize "for the best performance in comparison with the total weight of the machine". It was won by LM Young on a 2½hp Werner.

During the Six Days Trial AH Bindo□ðispictured in Worcester with his 3½hp Rex.

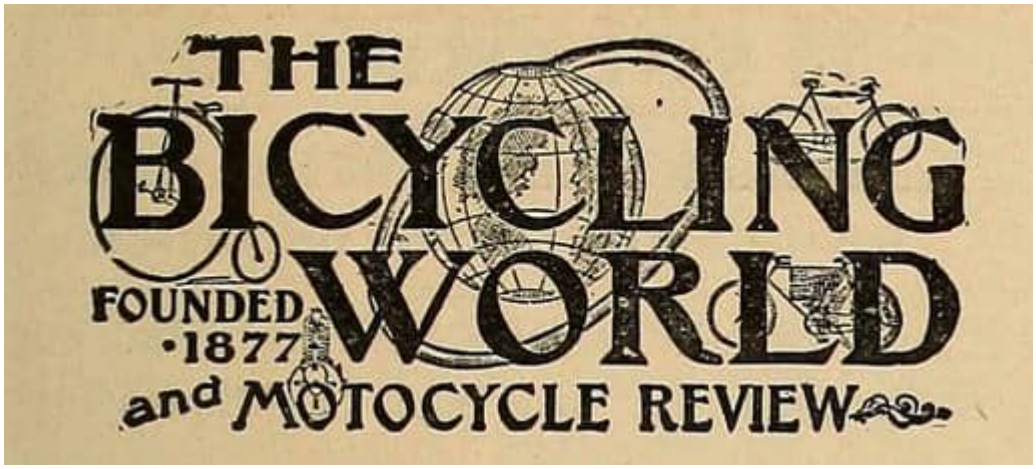
ROYALENFIELDADOPTEDtheP&Mtwo-speed set-up; Werner used a similar system with a rocking footchange.

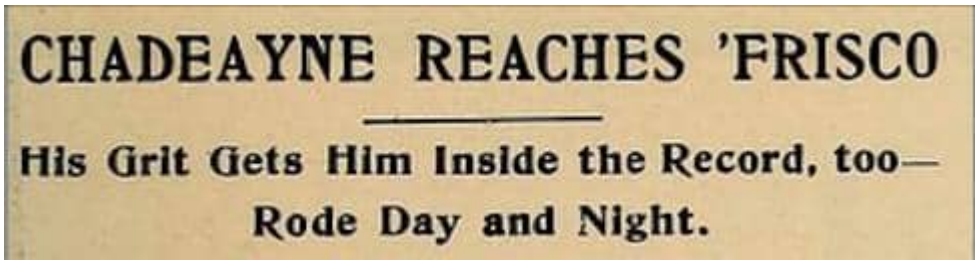
HUMBERCEASEDmotorcycle production to concentrate on cars—but they'll be back.

"THE DEFENDANT,ONTHEOCCASIONfor which he was summoned, was riding a four-cylinder bicycle, which 'gave bangs much more frequently than the ordinary cycle which had only one cylinder.' Consequently it gave the impression of terri□ðcspeed while going at the same rate as the ordinary motor cycle. 'Colonel Rowan Hamilton, JP—"I should get rid of that machine if I had it." 'Mr Devaynes Smith, JP—"Or alter it into a one-bang machine."'—From the report of the hearing of a speed-limit case in an Irish court."

"**KINGSTON MAGISTRATE:**'WHATDOyou calL a police trap?' **Defendant:** 'A trap set by the police to catch motorists.' **Magistrate:**'Then it is a motor trap. A trap set to catch rats is a rat-trap. This is not a police trap, because it is not used to catch the police. It is a motor trap.' As the magistrate in question attempts to split hairs, we should like to point out that even'motor trap' is not correct; it is the motorists who are trapped, not the motors."

***William C Chadeayne, Captain of the Buīalo Motorcycle Club and a director of the Thomas Auto-Bi Company, rode one of the company's bikes across the United States. It was only the second coast-to-coast run; the □ðrstmantodo it was George Wyman in 1903—you can read the full story of Wyman's run in the 1903 Features section. Here's Chadeayne's story, courtesy of* The Bicycling World and Motorcycle Review…**

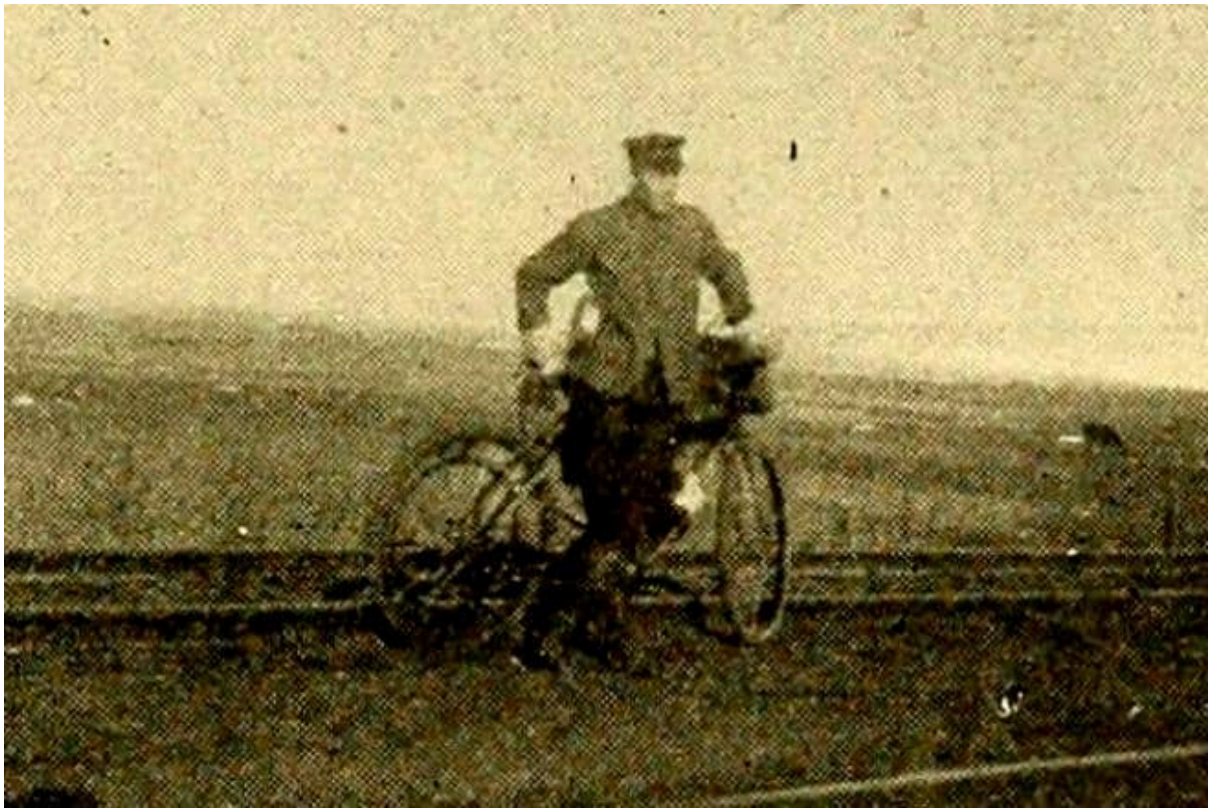



CHADEAYNE REACHES 'FRISCO

His Grit Gets Him Inside the Record, too—
Rode Day and Night.

"'SAN FRANCISCO,OCT30 (BYWIRE)—Chadeaynereached here at 9 o'clock this morning. He was 'all in' physically, but is otherwise all right.' This message reporting the completion of WC Chadeayne's ride across the continent on a 3 horsepower [440cc] Thomas motor bicycle marks the successful consummation of one of the pluckiest and most enduring performances in the annals of any sport. After he reached Cheyenne, Wyo, and sent back the message, 'I'm no quitter and will reach 'Frisco if it takes all winter', few doubted but that he would keep his word. He had been snowbound for two days at the time—October 16—and it seemed as if the task he had set for himself might prove an all winter one. Therethen remained but a ghost of a chance of his being able to reach his destination inside of GeorgeA Wyman's record of forty-eight and a half days. He was then thirty-six days out from New York, was more than 1,200) miles distant from San Francisco, and the roads were deep with snow and the Rockies and the Sierras and two deserts were ahead of him. All but hope and Chadeayne's pluck had 盂ðed.Slenderaswas the chance, he accepted it, and by daring and desperate riding by night and by day, he reached his goal. He beat Wyman's record by slightly less than a day. Chadeayne left New York September 13 at 9:25am and reached San Francisco October 30, at 9am. He thus completed the journey from ocean to ocean in 47 calendar days, 11 hours and 35 minutes, which takes into consideration the three hours' di□ðerencebetweenEasternand Western time. After leaving

Cheyenne, Chadeayne practically had not a night's rest. Fired by ambition and determination not to fail, he little more than snatched an occasional few hours' sleep. He reached the backbone of the continent, the Great Divide, at the tiptop of the Rockies, at midnight, and in darkness treaded his way up hill and down over the rocks and sand, over strange and lonely roads and bone racking railroad ties. It is not strange that ultimately in the early morning, near Ogden, Utah, he plunged over an embankment. He was knocked insensible and his machine was almost wrecked. If ever man had vailed excuse for quitting, Chadeayne had it at that time. But he had no thought of anything of the sort. When he regained his wits he straightened out the wreck as best he could and pressed on. He reached and left Ogden, some 900 miles from 'Frisco, on October 23, and covered that distance, which includes a desert and the Sierra range, in a little 1.9 than sevendays, and nights, for the last mail advices from him reported his arrival at Reno, Nev, at 7pm on October 28, after covering 175 miles in the preceding twenty-four hours. 'Rode between the rails most of the way,' he adds, 'roads being too sandy. Am riding night and day, in a desperate e□ðorttogetin on time. Am 'all in' here, but will not rest till I reach 'Frisco.' Previous to the receipt of this postal he had sketched his strenuous ride from Cheyenne to Ogden in the following semi-personal letter dated at Ogden, October 23: 'Arrived here this morning at 5am. Talk about hell! I am getting it. Am making a desperate e□ðorttogetthere on time. I am pretty much on the bum—that is, bunged up. Have lost plenty of hide in last few days and am black and blue in numerous places. But I will get there if there is a ghost a show. You will □ðnd Iamno quitter and will be them somewhere near the time. The plains and deserts were the 'worst ever'. Thought I had some sand farther east, but all those roads were dreams compared with them Western roads—mile after mile of sand, sage brush and alkali. My lips crack so they bleed, my throat and tongue are in盂ðamedandswollenand the thirst cannot be quenched by drinking from the canteen which I □ðllwheneveropportunity o□ðers. Theranchesand people are few and far between, twenty or thirty miles in some cases, and it makes one long to be back in God's country. I cover. over 200 miles of desert country and am mighty thankful to have a short breathing spell, for I will get more of it after leaving Ogden. Found the railroad track well ballasted, and covered many miles on it bumping ties. At Cheyenne I improved my time while having to wait there on account of snow by overhauling the machine and working on a rail attachment which proved a failure. Had a pretty hard time of it the □ðrstdayafterleaving Cheyenne. Had a clear cold day, but could not get away



Where no roads existed Chadeayne often had to ride the rails.

before afternoon. I started my climb of Sherman Hill, thirty-three miles long and going up to an altitude of somewhere around 11,000 feet. Toward evening it got very cold and I was making poor time of it over the road on account of snow, so took to the railroad and about 12am passed over the great continental divide. From there it was all down hill to Laramie, where I arrived about 2am, covering about □ðfty-sevenmiles. Thenext day I went over the desert to Rawlins; the day after that Green River, and the next day to Evanston. Have been taking advantage of moonlight to make up mileage at night. It was 11am when I pulled into Evanston, and after resting a bit left for Ogden, seventy-six miles away, fully expecting to reach there in good time Sunday afternoon. I found the roads in pretty good shape for this country, and after climbing for fourteen miles started on a down grade through Weaver Canyon. I had more than the usual number of spills and much hard luck. Thirty miles from Ogden I was making good time down a hill with a turn; at the bottom I slowed up some, but did not expect to run into snow and gumbo, and so lost control of the machine and pitched over a 20- or 30-foot embankment. When I came to two men and a woman were carrying me up to the road. I did not care about myself, as no bones were broken, and beyond a bad shaking up and a few scrapes and bruises I was all right—must have struck my head on a rock on the way down, for it was pretty, sore in places. What worried me most was the condition of the machine—it appeared a wreck as it lay there, but I managed to get it to a ranch some distance away, where I went at it with crowbar, large wrenches and hammer. It was long after dark when I □ðnallygotitin shape, so the wheels would revolve. I bumped over the rocky road for a while, but after two spills took to the railroad, which I followed in the dark to Echo, twenty-four miles from Ogden. I was determined to reach Ogden that night, and waited till after 2am for the moon, and □ðnallyreachedOgdenat5am. Was up and working on machine at 7:30. Expect to leave in morning.'**San Francisco, Nov 3**—WC Chadeayne, the cross-continent motorcyclist who reached here on Tuesday morning, 31st ult, is pretty well recovered from the exertions of his strenuous jaunt. Aside from a badly ulcerated

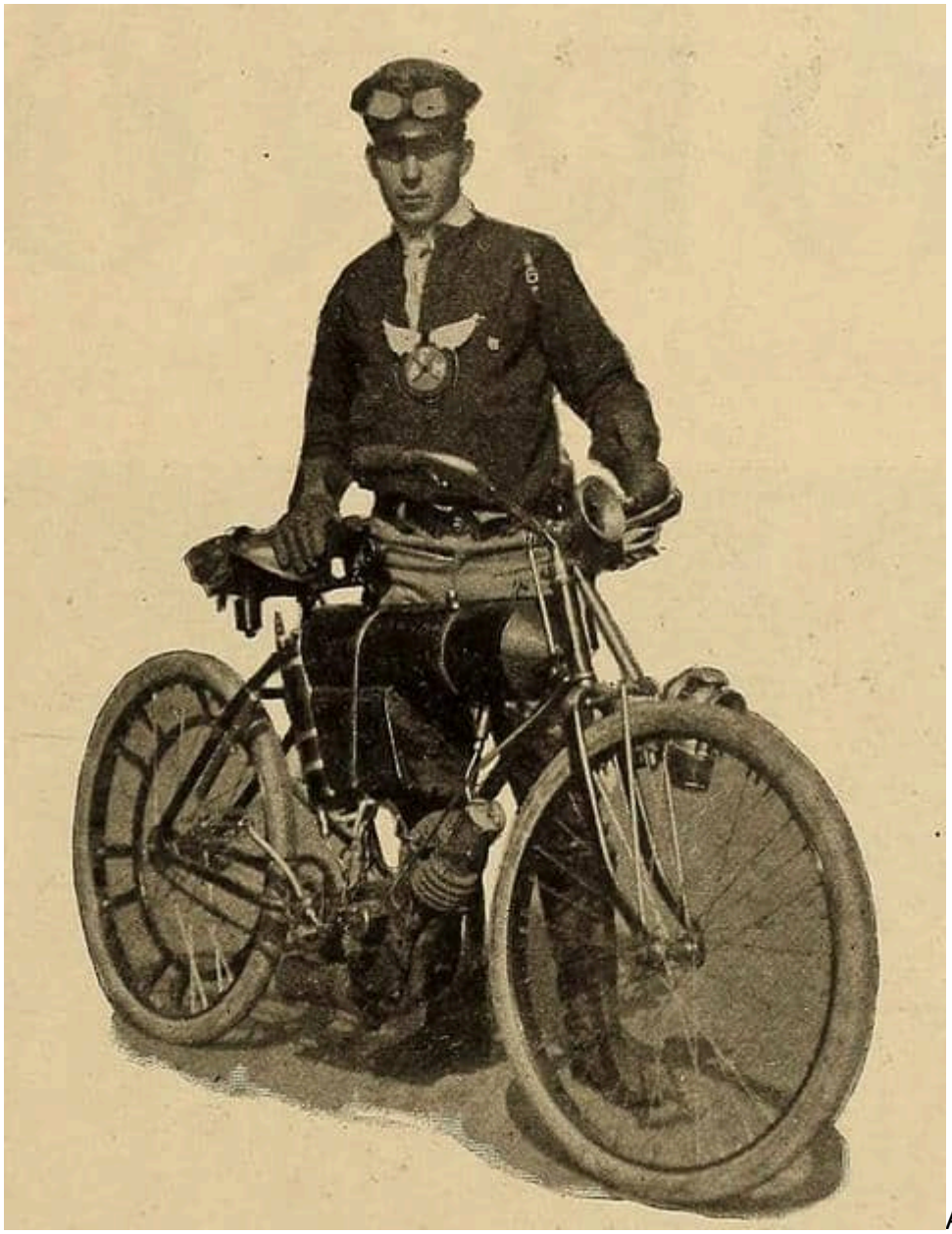
tooth, which required the attention of a dentist, his chief ailment has been brain fag, due to loss of sleep. Sleep has been his chief desire since his arrival, and be he has been permitted to obtain it undisturbed and in generous proportions. During his waking hours CC Hopkins, LH Bill and others of the local riders have striven to make his stay agreeable and to show him that they are able to appreciate the man qualities that made his long, stern night and day chase memorable. On Sunday next the San Francisco Motorcycle Club will have Chadeayne as their guest of honor on a run and dinner at Centreville. FM Byrne, the new captain of the club, has called on his fellows to turn out in strength to honor the rider who 'covered a few miles to visit us'. **Chadeayne's own story** of his 'run home'—this is, from Ogden to 'Frisco—is as follows: 'From Ogden to San Francisco proved the most trying part of my trip, for I used every bit of energy to get through ahead of time, driving the machine over roads when they were passable, and over the rail-road ties when they were not; walking when I could not ride,

According to the original caption, this snap of Chadeayne was taken in San Francisco just 10 minutes after he completed his trans-continental run.

sleeping only when I had to from sheer exhaustion. From Ogden I followed the railroad over the Lucin cut-o□ð, saving probably □ðfty miles by so doing. This cuts across the great Salt Lake, and I

had to keep a good look out in order not to be run down by trains. After crossing the lake again, I reached the desert, which is made up of a peculiar light, sandy loam, which I found was as smooth as a 盇ðoor,andhardas pavement in places, and I rode for many miles over it, to the railroad when it was impossible. I had a good deal of trouble in getting lubricating oil, but □ðnally got a mixture of castor oil and machine oil, which carried me into Montello where I stayed long enough to load up with oil and gasolene and, after getting something to eat, again started bumping ties westward. This was the most discouraging part of the journey, for I rode for miles and miles without seeing even a jack rabbit, but at intervals I passed sign posts labeled 'stations' a few box cars and section houses, which, however, I was glad to come across, for I could then replenish nay canteen with water, and occasionally get something to eat. The railroad across the desert is well ballasted, and by turning on full speed I could make pretty good time over the ties. At Wells it looked like rain, and sprinkled a little. I arrived at Carlin late in the evening and slept for a few hours in the ice box of an empty refrigerator car. It was the warmest place I could □ðnd.Earlythenextmorning, while riding on the ties, I happened to look round just in time to see a passengertrain coming after me at tremendous speed. It was within forty or □ðftyyardsofme.Having no time to stop, I turned sharply to the right, my machine struck the rail and machine and rider landed in a heap in the ditch just as the train passed with a roar. I was somewhat bruised, and I expected the machine would be a wreck, but a bent crank seemed to be the extent of the damage. Otherwise the day passed without incident. The same thing—sand, sage brush, bad road and heat—was encountered on the next day of my journey. The faithful little motor plugged along, carrying me steadily westward. I reached Winnemucca, where I enjoyed a few hours' sleep in a bar room, and continued my night ride. I had some trouble in starting up here, for the oil had 'frozen' in the cylinder, but a liberal 盇ðoodingof gasolene and an abnormal waste of energy □ðnallystartedit and I covered many miles. About 5am my motor refused to mote, and I slept until daylight alongside of the track. After repairing a broken battery wire I continued my trip. It is now a steady climb, and I follow the track most of the way, gradually getting into a more fertile country. I stopped at a place called Hazenlong enough to get something to eat. This a two-house village, into which a stage runs from the mines farther south. Prices are away up; shaving, 75 cents; hair cut, $1. Thefare on the stage to the mines is $25 per seat. Continuing my trip, I □ðnallyentera fertile valley and □ðndafairlygood road. Imagine my joy at the sight. ride over the road for many miles and enter Reno—the Monte Carlo of the West—shortly after dark. While here I am entertained by some of the sta□ðofThe Utah State Journal. After a good dinner I tarried long enough to look over my machine, □ðlltanks and look into the di□ðerentgamblinghouses. Poker. roulette craps and faro seemed to be the popular games, and the gold and silver were piled high on the tables. I would have liked to have spent more time in Reno, for I found it au interesting place. However, I made a start in the dark for Truckee, following the rails. I had not gone far before I pitched into an open culvert, breaking a pedal and badly bruising my hip. I returned to Reno and was fortunate enough to secure a pedal. I was forced through mere exhaustion to take a few hours' rest in a shed adjoining a saloon, and, awakening in time to get an early start, I followed the railroad track to Truckee, where I climbed for miles over a hard road to the summit. From there it was a down grade over a fair and very dusty read to Colfax, where I stayed for a short time, and after riding nearly all night arrived at Sacramento about 8am. It is only ninety miles by rail to San Francisco, and I was much disappointed to learn that I would have to ride fully one hundred and □ðftymilestoget there by road.' **Owing to error in dating** The Bicycling World's telegram, reporting Chadeayne's arrival in 'Frisco, it was made appear that he reached there at 9am on Monday, October 30. As a matter of fact, it was at that hour on the following day that he arrived at his destination. His record, therefore, stands at 48 calendar days, 11 hours, 35 minutes, about two hours better

than George A Wyman's performance in 1903. **Chadeayne may explore Mexico.** WC Chadeayne, the new cross-continent motorcycle record holder, is still unsatis□ðedandissighing for new □ðeldstoconquer. Before returning to his home in Bu□ðalo,NY,hewill tour Southern California, and may even explore Mexico, and return home through the Southern and Atlantic Coast States."



And here's Chadeayne and his Auto-Bi, wearing what looks to be his club jersey.

***And here's some more yarns from the Wld West, also culled from that excellent organ* The Bicycling World and Motorcycle Review…**

"WHAT THEYLEARNEDABOUTGASOLENE.Gasoleneis a substance that is not to be treated lightly wherever it may happen to be found, as witness the recent experience of some young Englishmen in a boat—an incident that also illustrates the danger of emptying fuel about promiscuously when necessary to dispose of it in a hurry. A number of motorcyclists were about to take the boat from New Haven to Dieppe, and emptied the tanks of their machines in the □ðrst

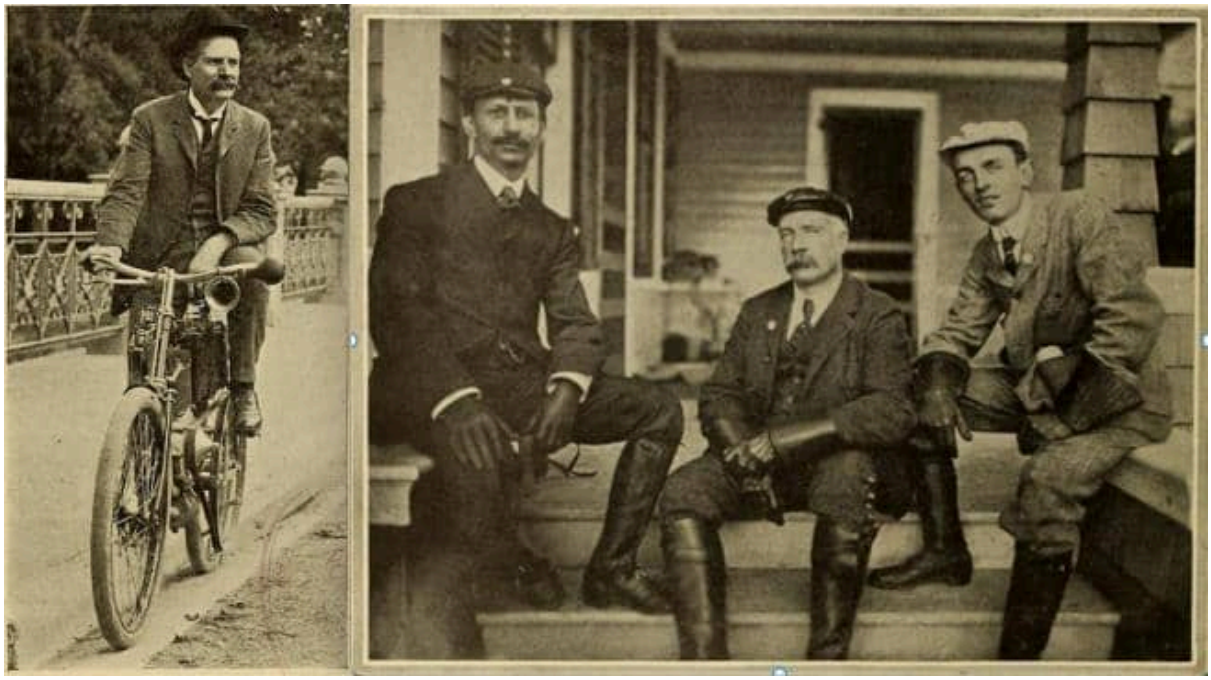
convenient place available. Most of the gasolene found its way into the river and was 盇oating down stream when the aforementioned young men saw it. Out of curiosity one of them threw a lighted match on the surface to see if it would burn. He was instantly rewarded by a □ðerce盇ame, which shot some feet in the air, setting □ðretotheboat and to his clothes. He jumped overboard without delay in the attempt to extinguish the 盇ðames,butwasbadly burned before being rescued. His companions escaped unhurt."

"WHAT MIGHTHAVEPROVEDafatal accident in the case of both of two prominent devotees of the motor bicycle who owe allegiance to the Kaiser and claim a residence in his capital a□ðords an excellent illustration of the necessity of keeping a sharp lookout when on an unfamiliar road. While going toward Magdeburg,Germany, Otto Lueders and Alwin Boldt did not think it worth while to slow up where it was necessary to cross a drawbridge across the Havel at Werder, the approach to which is completely screened by dense foliage. Tearing along at full speed they rounded the curve in the approach, and, when within a few yards of the bridge, found that it was open in order to allow a barge to pass. Lueders, who was □ðrst,succeededin coming to a stop within a few inches of the edge, but his companion was less fortunate, rider and machine going into the river at high speed. Being a good swimmer, however, he had no di□ðicultyinreaching the bank, and later recovered the machine as well. With a delay of but a few hours both were able to resume the journey."

"ALTHOUGHA HEAVYTRACKgreatlyhandicapped the riders in negotiating the turns and prevented any record breaking performances, the □ðrstracemeetheld by the Omaha (Neb) Motorcycle Club on Sunday, 1st inst, was a decided success. Over one thousand persons witnessed the event, all of which were well □ðlledandthe □ðnishesofthe hair raising variety. The meet was held on the SpragueParktrack, and, although the meet was for motorcycles and promoted by gasolene disciples, several bicycle events were carded."

"REIDEVILLE,NC, WILL HAVEthe possibly proud distinction of being the □ðrsttownin the United States in which a citizen actually has had to go to law to obtain the right to use a motor bicycle on the public highways. David L Carroll is the citizen in question. Incidentally, the Carroll case is the □ðrstoneinwhich the Federation of American Motorcyclists has taken a hand. PD Watt, Mayor of the town, was the author of the ordinance, or bylaw, or motion, responsible for the state of a□ðairs. Itappearson the town records in this form: 'PD Watt, Mayor—Motion to prohibit the running of what is known as motorcycles on the streets of the town, and a □ðneof$2be imposed for each o□ðence.Motioncarried. Clerk instructed to post notices to this e□ðect.'There are three motorcyclists in Reidsville. Theaction of the 'city fathers' was enough for two of them. Theyhave not used their machines since the passageof the prohibitive bylaw. Carroll is the third one. He is made of sterner stu□ð.Heapplied to the FAM for advice and assistance. Chairman John C Higdon, of the Legal Action Committee, informed him that there was no doubt of the unconstitutionality of the ordinance, and that if he became a member of the organisation and would 'get arrested', the FAMwould assist in his defence. Carroll promptly did both things. His arrest entailed a □ðneof$2,but he immediately appealed the case to the superior court. His determination caused some of the Reidsville o□ðicialstoweaken, and to suggest that he compromise the matter, but Carroll's □ðghtingbloodisup, and he writes that he means to see it through to a □ðnish.Thecasewill come up for hearing next week. Thebrief which Counsellor Higdon bas prepared, and which will be brought to bear, and which, as the □ðrstofitskind, is of interest and value, is as follows: 'Thedefendant is charged with riding his motorcycle the streets. Defendant contends that the ordinance is unconstitutional, and is class legislation, inasmuch as it prohibits motorcycles from being used on the streets, but places no restriction

on other vehicles. A street or a road is, in law, a public highway, and as such belongs to the public and to all the citizens thereof, and all have the right to travel thereon by their own selected modes of conveyance, whether it be as foot passengers, bicycle, ox team, a four-in-hand, or an automobile. (Coombs vs Purrington, Barker vs Savage, Commonwealth vs Temple.) To say that a new mode of passage shall be banished from the streets, no matter how much the general good may require it…would hardly comport with the advancement and enlightenment of the present age. (Moses vs Pittsburg, etc.)"



"John C Higdon, Chairman, FAM Legal Action Committee" and "O□ðicials of the Federation of American Motorcyclists: RG Betts, president; EW Carritt, vice-president, Eastern District; HJ Weiman, secretary." When Hicksville USA tried to drive its entire motor cycling fraternity from its streets, the FAM told the silly burghers to wind their red necks in."

"THE WALTHAM (MASS) Autocycle Club has 'sen the error of its way' and has changed its name. It is now the Waltham Motorcycle Club."

"AUSTRALIA HAS GROWN GENEROUS. It has reduced the motorcycle registration fee from $1.25 to 25 cents and the dealers' tax from $15 to $2.50. The speed limits have also been raised from 20 to 25 miles is the country and from 10 to 12 miles per hour in cities."

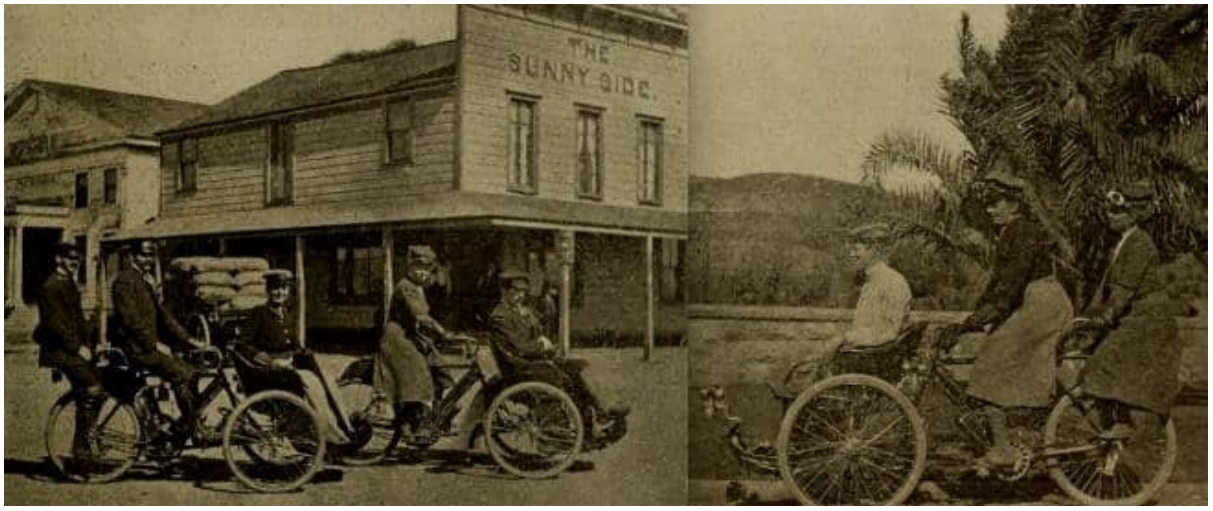
"THERE IS SAID TO BE a good market for motor bicycles in the North of Sweden and Finland, where the means of communication are usually very defective. Belgian and German machines have the lead up to the present time, but the opening for trade is said to be good."

"ALDERMAN SMBECKER is planning to introduce a measure in the Common Council of Milwaukee, Wis, to provide a detail of policemen with motorcycles. He believes they will be able to suppress automobile scorching, catch runaways and better regulate tra□ðic."

"SHADES OF ANDREW CARNEGIE! An Essex man in England advertises a 'three roomed cottage and □ðve plots of valuable land' in exchange for a 'light, low frames 1905 motor bicycle'."

"I INCLOSE A COUPLE of snaps of double and triple carriers, as we are successfully using them out here. The women that you see in them ride them and run them without assistance. Mrs FE

Carroll drove the two-seater, carrying her husband, over □ðftymileson Sunday, the 8th, when these pictures were taken. Mrs CC Hopkins (who is shown in the car with Mrs JH Nash in front and Mrs Carroll in the rear) can also handle the three wheeler successfully, but she prefers the comfort of the front seat, and usually rides there. I carried three of us some seventy miles on Sunday last with the greatest comfort and success. 'I □ðndevenmorecomfort in riding the machine with three than with two. If the rear rider assists a little in starting the machine there is no extra labor for the middle rider, who is nearly 'everything' in this rig, so far as operation goes; but this 'middleman' is not put to any great labor and has ample time to look at the scenery as he passes along the way. I found that I could easily get over sixty miles from a gallon of gasolene, carrying three, whose weight was 450, with forty pounds of baggageadded, and not try for □ðneresults,andI must say that under ordinary conditions I have been converted thoroughly to the tricycle for three, as I now have it."



"The women that you see in them ride them and run them without assistance."

FREDDIEBARNESJOINEDZenithas chief engineer and patented the Gradua variable-ratio belt drive transmission. It changed the e□ðectivediameterofthe crankshaft pulley to alter the drive ratio, while simultaneously moving the rear wheel forward or back to maintain belt tension. Control was via a rotating lever on the fuel tank, Thecompany was not shy of innovation, witness the Bicar, with hub-centre steering, two-speed transmission and a drum brake; it was based on the three-wheel Tricar. TheBlue 'Un reported: "Invented by Mr Tooley, of Great Yarmouth, and exhibited at the last Crystal Palace Show, where it made its debut, the Zenith Bicar is a completely novel form of motor-bicycle. Themost interesting portion of the machine is, of course, the frame, which, as will be seen at once, is a startling departure from orthodox lines. Theupper longitudinal tubes extend from the rear wheel spindles completely round the front wheel, the latter being supported in phosphor-bronzeguides, in which it is allowed to move freely on hardened steel rollers. On each side of the front wheel spindle there are rods running to the steering arm, which are somewhat after the fashion of a tri-car one attached to the bottom of the steering pillar. Thelower portion of the frame is hinged on two lugs which are brazed on to the forward end of the upper frame, while at the rear end shackles are □ðtted between the two portions. Theback forks are of the usual pattern, but are hinged at the points where they converge on the rear spindle slots. Thelower frame, therefore, carries the engine and coil and accumulator boxes, and the

The Famous
'ZENITH
BI-CAR'
A Motor Bicycle with all the Comforts of a Car.
The Comfort of a Car at the price of an ordinary Motor Bicycle.
The Bi-Car, as advertised by Zenith.

This Bi-Car dates from 1906, by which time it seems to have acquired a mag.

weight of the rider, since the down tube is carried through a guide □ðxedonalateral stay of the top frame, and attached to a similar stay on the bottom frame. Thus, to explain it clearly, the top frame carries the two wheels only, while the bottom frame supports the weight of the rider, engine, etc, independent movement of the two being allowed by the hinges and shackles to which reference has been already made. Theadvantages claimed are that vibration is considerably reduced, and by the novel system of steering employed the front forks-which are generallyadmitted to be the most vulnerable portion of the modern motor-bicycle-are done away with. Risk of sideslip also is, according to the makers, entirely eliminated. Themotive power is a 3hp air-cooled [Fafnir] engine, governed by means of a variable inlet valve, while the gas is supplied to it through a latest pattern Longuemarecarburetter. Particular attention has been paid to the ignition system, the current being supplied by two Prested accumulators, and intensi□ðedbyaPrested trembler coil. Either accumulator may be put into action by using a neat two-way switch, which is □ðttedinaconvenient position. A useful handlebar switch is also supplied, by means of which the current may be permanently cut o□ð,ormomentarily switched on and o□ðatwill for tra□ðicriding. The belt is a Watawata, running on pulleys turned up to a correct angle. A free engine clutch is incorporated in the engine pulley, and a starting handle is

supplied. After inspecting the machine at the Zenith Motor Engineering Co's works at 101a, Stroud Green Road, Mr Bitton, the manager, kindly placed a machine at our disposal for a few minutes. The clutch took up the drive very nicely, and the engine easily started the machine from a standstill. Seated on 3 Brooks' B100 saddle, and with our feet on comfortable footboards, we found the machine to be an easy-running and a satisfactory mount."

Zenith's Bicar won global sales. This example was pictured in New Zealand; others were running in Australia, India, Siam, Mexico and Brazil.

This survivor was auctioned in Melbourne in 2020 for A$100,500 (£52,000).

Bruneau o□ðeredanenclosedrear chain with a freewheel system so the pedalling chain also served as the drive chain. Thosecanny Frenchmen also came up with a tidy plunger front wheel suspension set-up.

BSAMADEITS□ðrstmotor-cycle, powered by Minerva; Minervas □ðnished□ðrst,secondand third in the 560-mile Sydney-to-Melbourne race.

SVANUSFBOWSERinvented a petrol delivery pump. There's eponymous for you.

THEUSAPRODUCED2,295motor cycle, up from 159 in 1900. Among them was a new 4hp V-twin Orient.

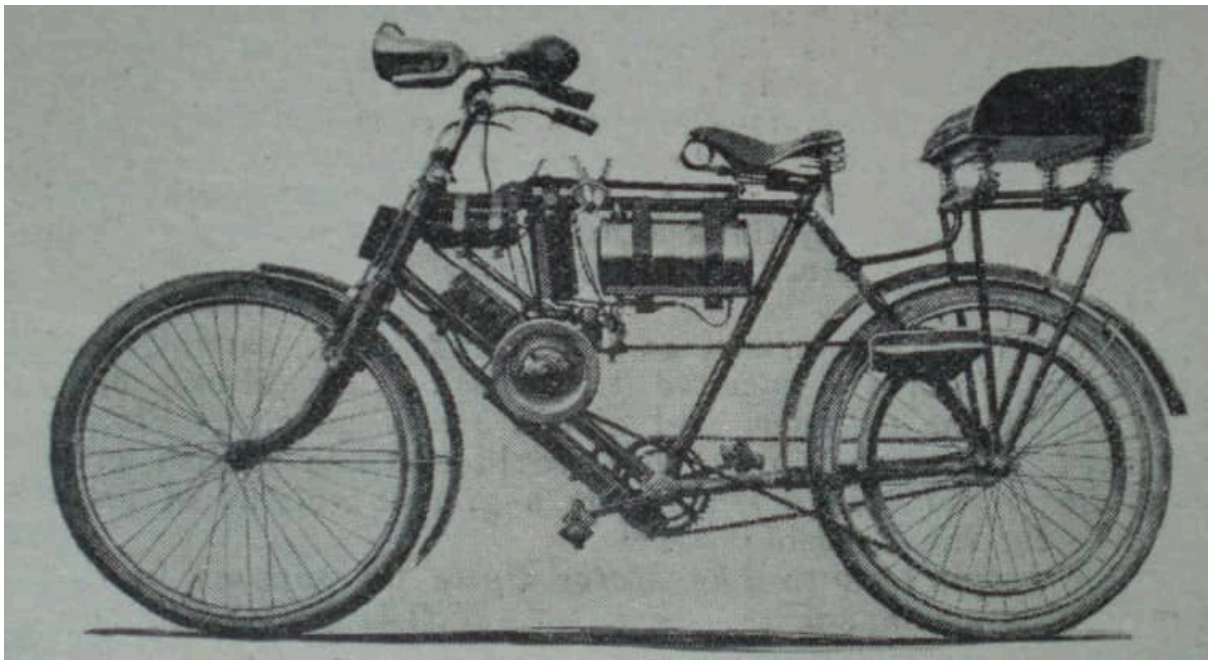
BYYEAR'SENDthere were 21,521 motorcycles registered in Britain.

BRITISHIMPORTSOFmotor cycles rose, to 1,700. Exports fell, to 688.

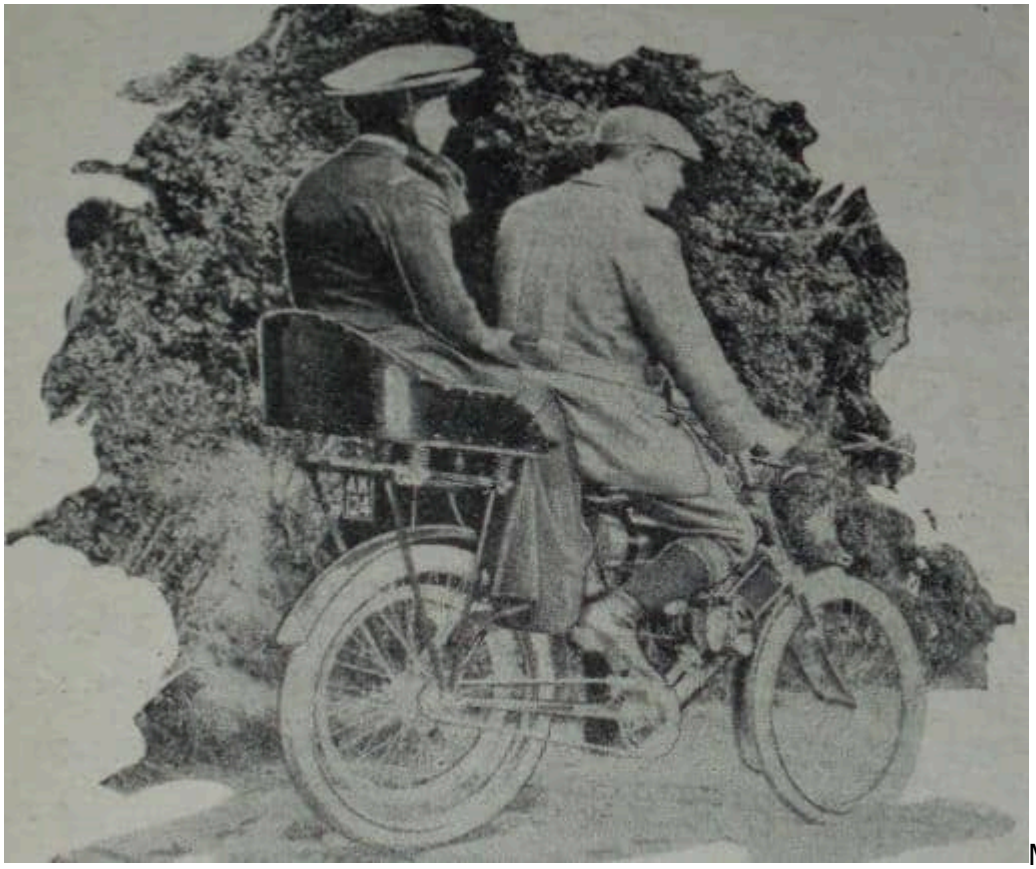
A GROUP OF enthusiasts met at the London Trocadero to set up the Automobile Association. Its prime aim was to help motorists avoid police speed traps.

THE SECOND RUNNING of the club team trial was a walkover for the MCC—no one else entered.

BICYCLING NEWS AND MOTOR REVIEW opined: "There is no disguising the fact that the motor-bicycle is, in England at least, under a cloud, many former riders of the same having given it up. Nor are the reasons for this state of a □ðairsdi□ðicult to comprehend. Almost all manufacturers have, without rhyme or reason, taken the ordinary push-bicycle as their model for the vehicle, and tacked a motor to it somehow or other. As the fastenings turned out insecure, or the strain proved too much for the frame, or the space originally allowed showed itself to be too cramped, modi□ðcations have been introduced one by one, the maker being apparently content to get his conglomeration to hold together somehow, and wonderful contraptions have been the result. I don't think it is too much to say that not a single one of the most popular—shall I not more truthfully say least unpopular?—models of to-day display features that a self-respecting designer of some six years back would have been ashamed to acknowledge as his own. Owing to—shall we say?—the want of mechanical thought, the small engine that, after all, did fairly well on the original motor-tricycles, and even on quads, has proved insu□ðicient to take the bicycle with standard transmission along. Engine power has gone up, bringing in its train heavier framework and tyres, and speeds on the level that are far above the requirements of the average individual, without, however, always ensuring regular hill-climbing power…"



This sprung pillion seat was made by C T Cuss of the Great Western Railway (Swindon) Works MCC; was it the □ðrst? And did he make it in his own time?



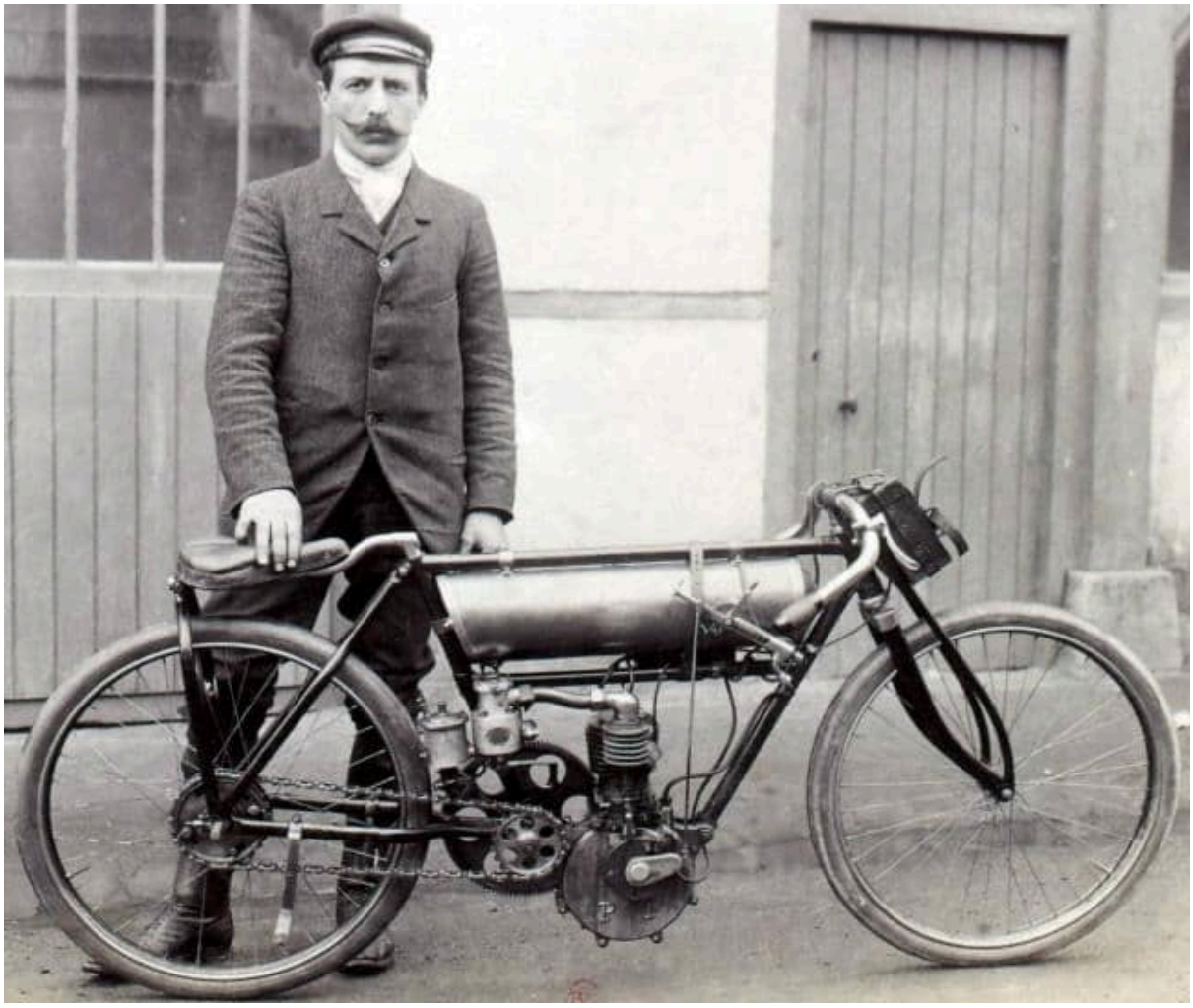
Mr Cuss's seat certainly looks comfortable.

MOSTOFTHEmotor cycle clubs springing up around the country were named for their home town; a small group of enthusiasts in Oxford showed more imagination, setting up a 'semi-private' club and calling it the BoanergesMCC.As biblical scholars will know, Boanergeswas, allegedly, a nickname Jesus gave to his disciples John and James to re盂ðecttheir□ðerynatures;it was later used to describe any '□ðreandbrimstone' preacher. So why use it for a bike club? Because it also translates as 'sons of thunder' and that's how they were generally known (until they adopted the name Bocardo MCC a few years later). The Sons of Thunder MCC…clearly ahead of their time.

THEREWERE20STARTERSinthe Circuit d'Ardennes. Entries included three Gri□ðonsridden by messrs Lamberjack, Demeester and Bucquet; four Peugeotsridden by Cissac, Giuppone, Champoiseau and Rivaand three Alcyons ridden by Anzani, Thomas and Griet. Theyfaced three German Adlers and three Belgian Saroléas. TheGri□ðonteamstormed to victory with Bucquet, Lamberjack and Demeester □ðnishing1st,2ndand 3rd. Thomas (Alcyon), battling Bucquet from the start, □ðnishedsecond,but his bike was found to be over the 50kg limit and was disquali□ðed.

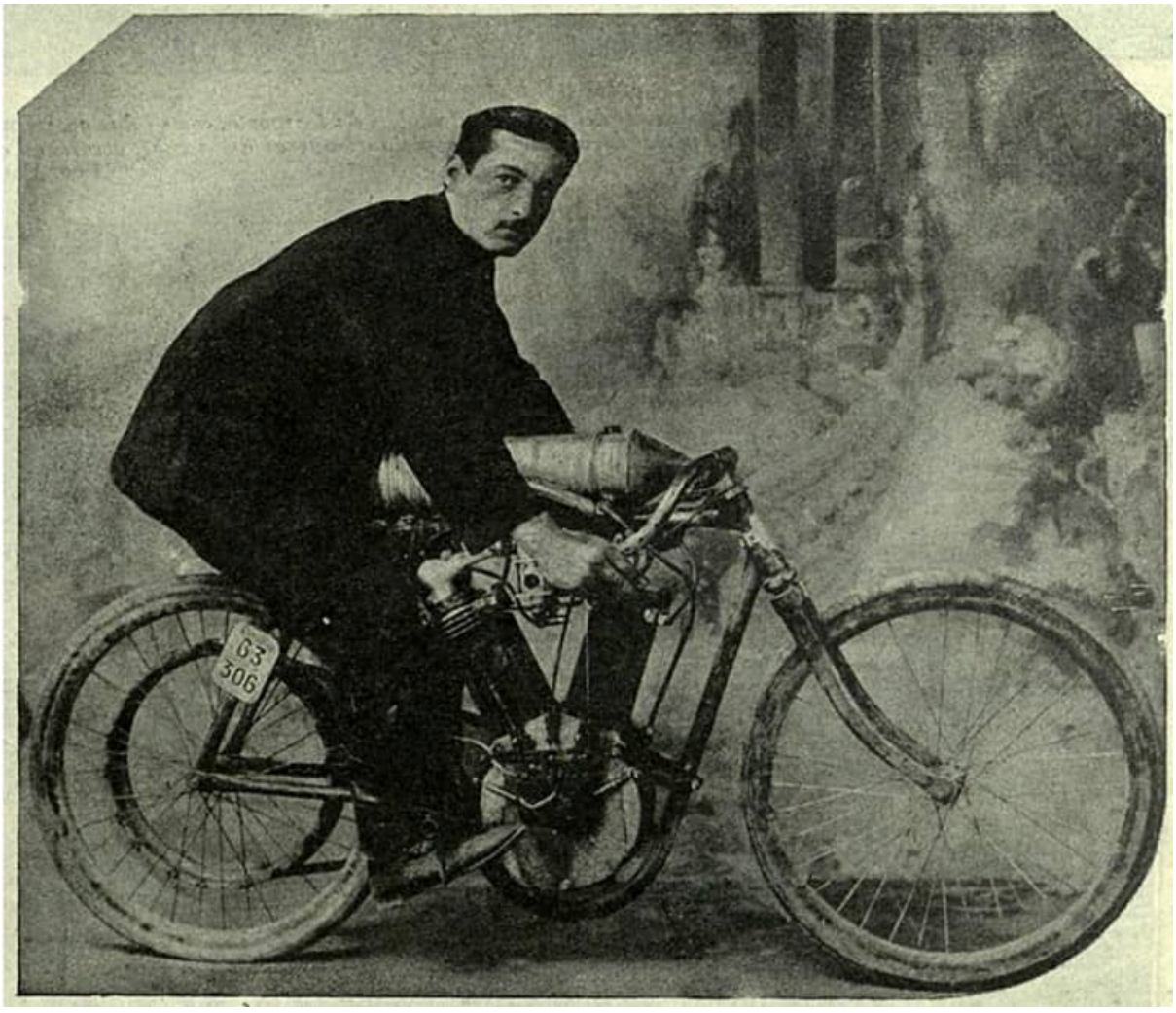
Bucquet, winner of the Circuit d'Ardennes for Gri□ðon.

Thomas rode with the Alcyon team.

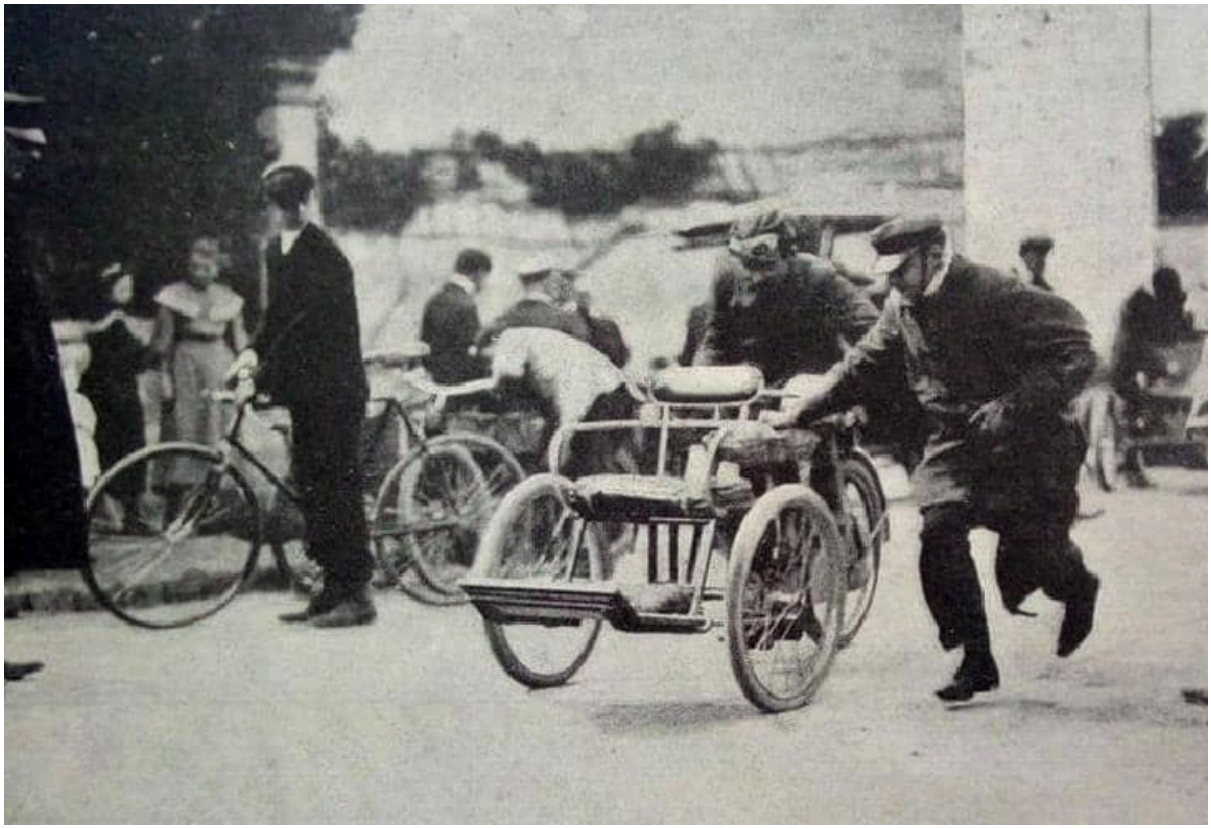


Henri Cissac avec Peugeot.

GIOVANNI PIRELLI DECIDED motor cycle races would be a great testbed for his tyres; their □ðrst outing was at the third Susa-Moncenisio race at Turin. The start was delayed by the late arrival of Queen Margherita who made up for it by donating a silver cup. There were 10 starters in the motor cycle class with the Peugeot team, Riva, Reale and Giuppone, □ðrm favorite. Giuppone was leading when he ran out of petrol. He pushed his bike to the line leaving his team-mate Riva to win the cup presented by the magazine La Stampa Sportiva. However Giuppone ended the year on a high note. On 9 December he rode a 12hp twin Peugeot round the Parc des Princes track, covering 63 miles 1,078 yards in an hour to set a world record that would stand for three years (to save time slogging through 1908, the record breaker was Charlie Collier on, inevitable, a Matchless; he took the world record to 70 miles 105 yards in an hour).

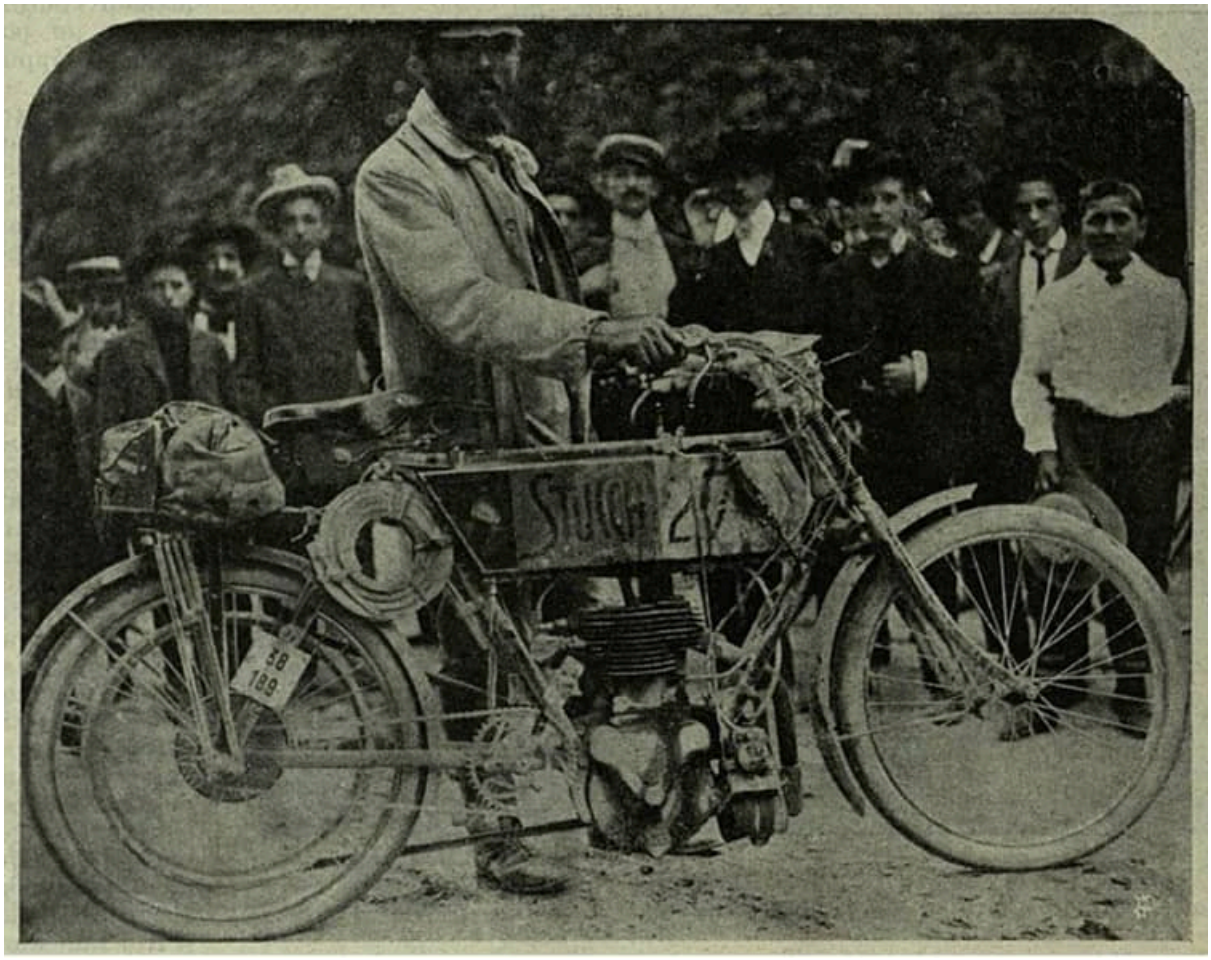


Riva won the Sports Press Cup on his 8hp Peugeot.

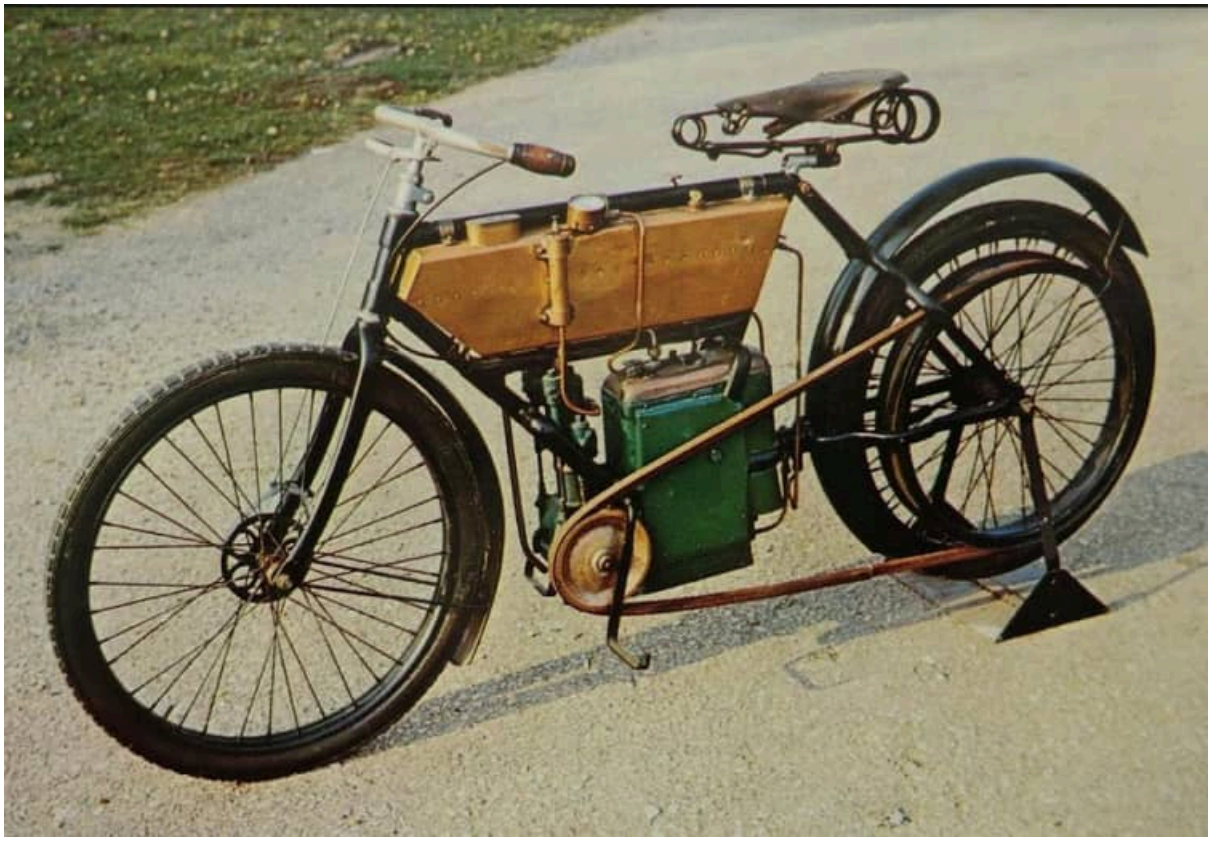


They're o□ð! This is the start of a French trike race which attracted 18 starters, but solo motor cycles were taking centre stage.

STAGED AT MILAN FOR THE SECOND time by the magazine Gazzetta dello Sport, the Mille Kilometer Motor Competition, including the Brescia Cup race for motor cycles, was run over four 250km stages and coincided with the start of the Brescia Automobile Week, a major event on the European motor racing circuit with the prestigious Florio Cup at stake. Each manufacturer could enter a up to three machines. But breaking with standard Continental practice, they had to be fully equipped tourers of 3-4hp up to 475cc. Points were awarded for a range of factors including fuel consumption, reliability, durability, price and weight—and there was an average speed limit of 25km/h making this more like a long-distance trial than a road race. Teams were entered by Zedel, Neckarsulmer, Adler, Peugeot, Marchand, Primus and Stucchi; bikes started at one-minute intervals. Peugeot ended a long series of victories—all three bikes retired during the second stage with serious tyre problems. Marchand's campaign ended when Morandi crashed and su□ðered serious head injuries. Stucchi, Neckarsulmer, Adler, Zedel and Primus all completed the course and, following a couple of weeks of deliberations, the judges declared Stucchi the winner, awarding the Brescia Cup to Stucchi teamster Pavesi.

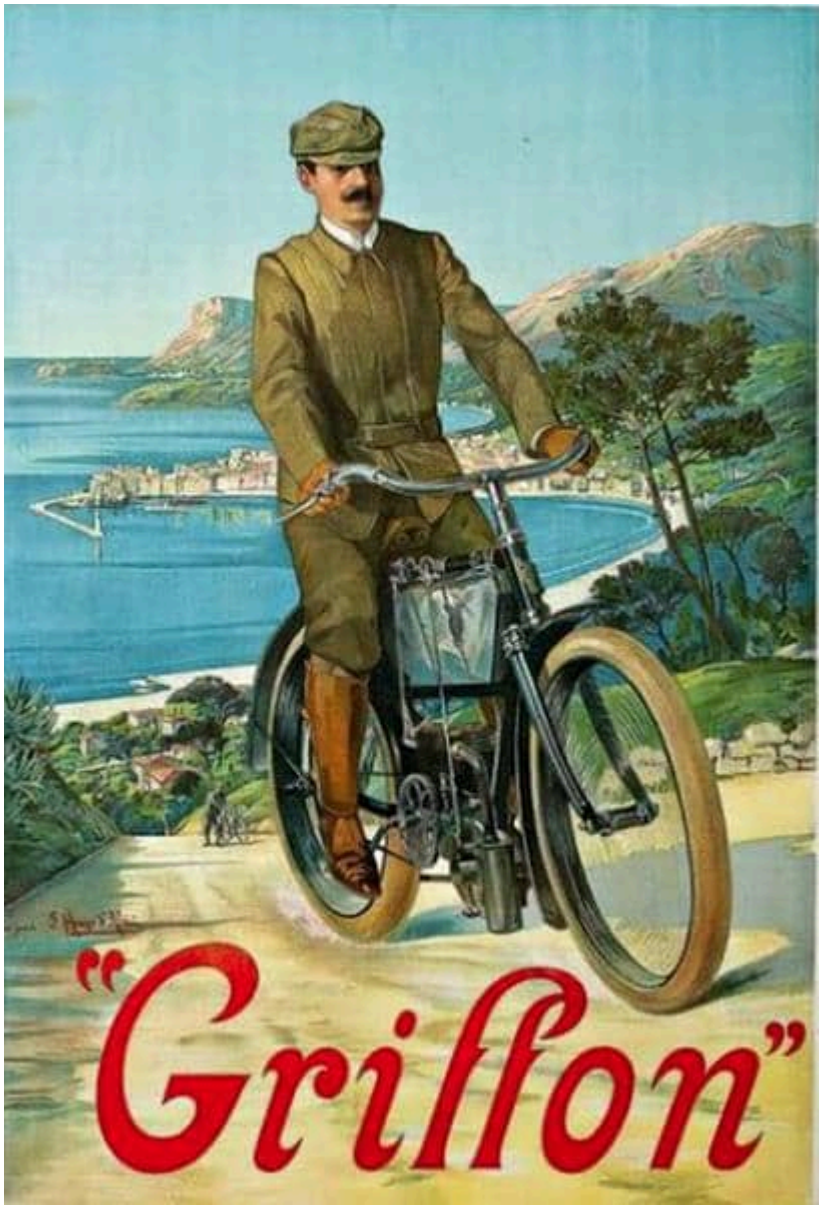


Pavesi(Stucchi) won the Brescia cup at the end of the Mille Kilometer trial. His comprehensively equipped machine makes a startling contrast to contemporary 50kg racers.



Like trikes, steamers had had their day, but this survivor looks to o□ðerapracticablealternative to the early i/c engine.

…and,for your delectation, here are a few of the ads that were tempting enthusiasts in 1905.


"Griffon"

'TIS TRUE!

Our Automobile business figures $1,000,000 yearly, while our motor cycle business is less than ⅓ this amount—yet we are very much alive and are still proud of the fact that

WE BUILT THE FIRST PRACTICAL MOTOR CYCLE IN THE WORLD

Our 1905 model promises to eclipse anything on wheels. The new model will bear the same name as our first invention and—

IT WAS AN AUTO-BI

Full particulars will be brought out in this space later. May we put you down for a catalogue?

E. R. THOMAS MOTOR CO.

1400 NIAGARA STREET BUFFALO, N. Y.

Members of Association of Licensed Automobile Manufacturers

Of course, the

BROOKLYN MOTORCYCLE CLUB'S ECONOMY TEST

added another to the big collection of the

INDIAN'S BATTLEFLAGS

It

WON EVERY PRIZE

in its class—for machines of less than 3 h. p.

THE WINNER'S RECORD:

190 MILES FOR 47 CENTS.

(Five quarts, one ounce of gasolene; one pint of lubricating oil.)

THE INDIAN TRI-CAR

fitted with a tandem attachment and carrying three passengers, weighing 430 pounds.

WON IN THE PASSENGER-CARRYING CLASS

190 MILES FOR 68 CENTS

or 835 miles for one cent.

Twice as many Indians started as any other one make and **all** finished—but one of them outside the time limit of 15 hours.

How can any thinking man select other than an Indian?

HENDEE MFG. CO.
Springfield, Mass.

WANTS AND FOR SALE.

15 cents per line of seven words, cash with order.

WANTED—Second-hand Indian Motorcycles; I also want the trade of motorcyclists everywhere for supplies, ammeters, hydrometers, stands, spark plugs, belt hooks, chain links, batteries and everything else. F. B. WIDMAYER Motorcyclists Supply House, 2312 Broadway, New York.

MOTORCYCLE BARGAINS—1 Indian, 1904, $125; 1 Rambler, 1904, $125; 1 Rambler, new, shop worn, $150; 1 Merkel, $75. A complete stock of Indian and Rambler parts on hand. Reliable repairing by competent mechanics on all makes of machines. TIGER CYCLE WORKS, 782 Eighth Ave., New York.

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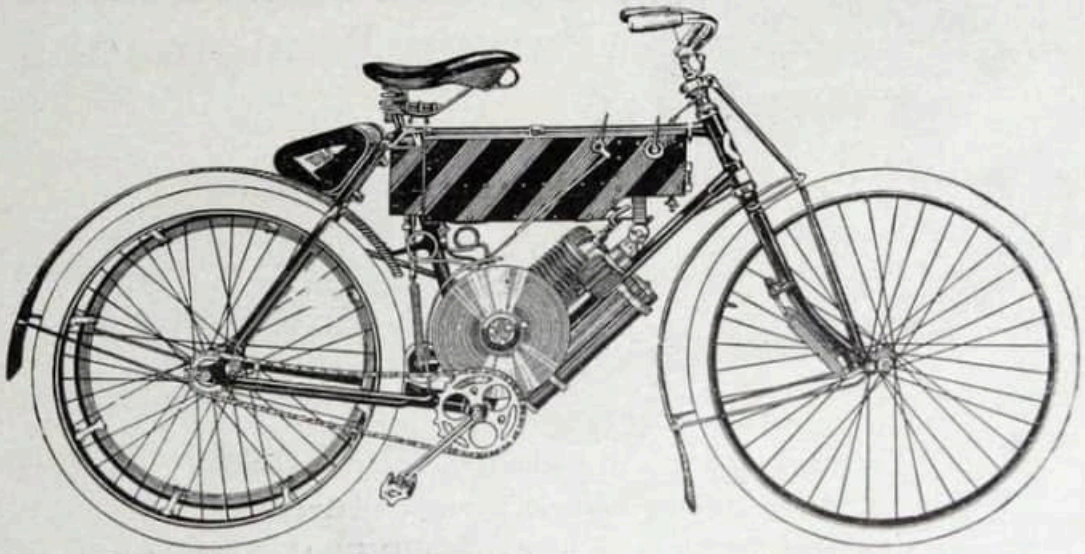

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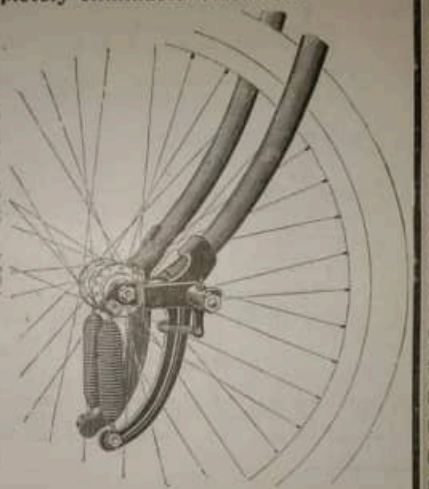

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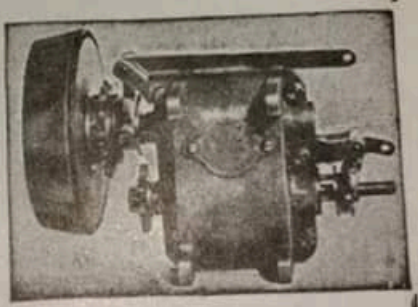

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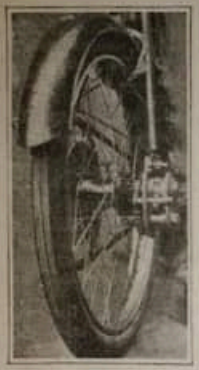

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THE RECORD OF 'The Brown'

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WON ON A 3½ h.p. "BROWN."

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Everything for Motorists.

The "M.C." Mud Splash

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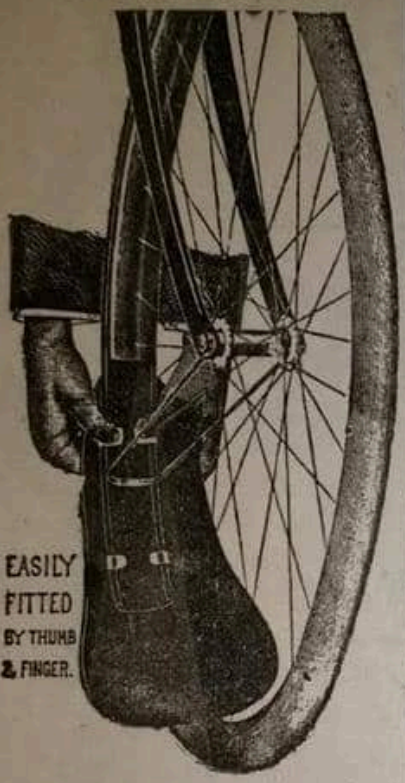

So formed that the mud falls clear of the wheel; cannot splash rider when going through muddy roads.

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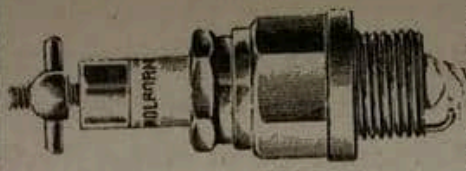

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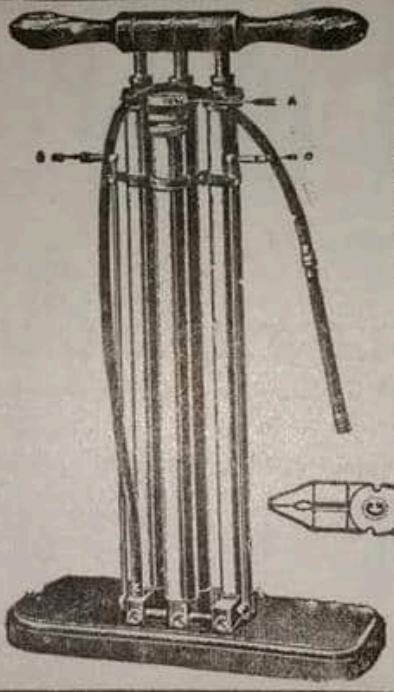

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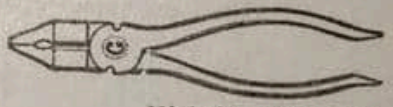

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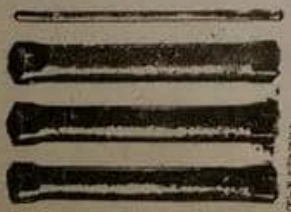

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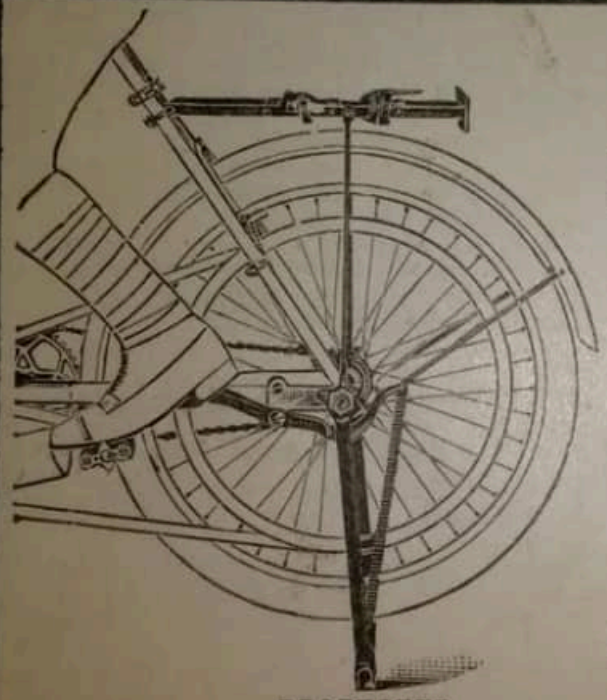

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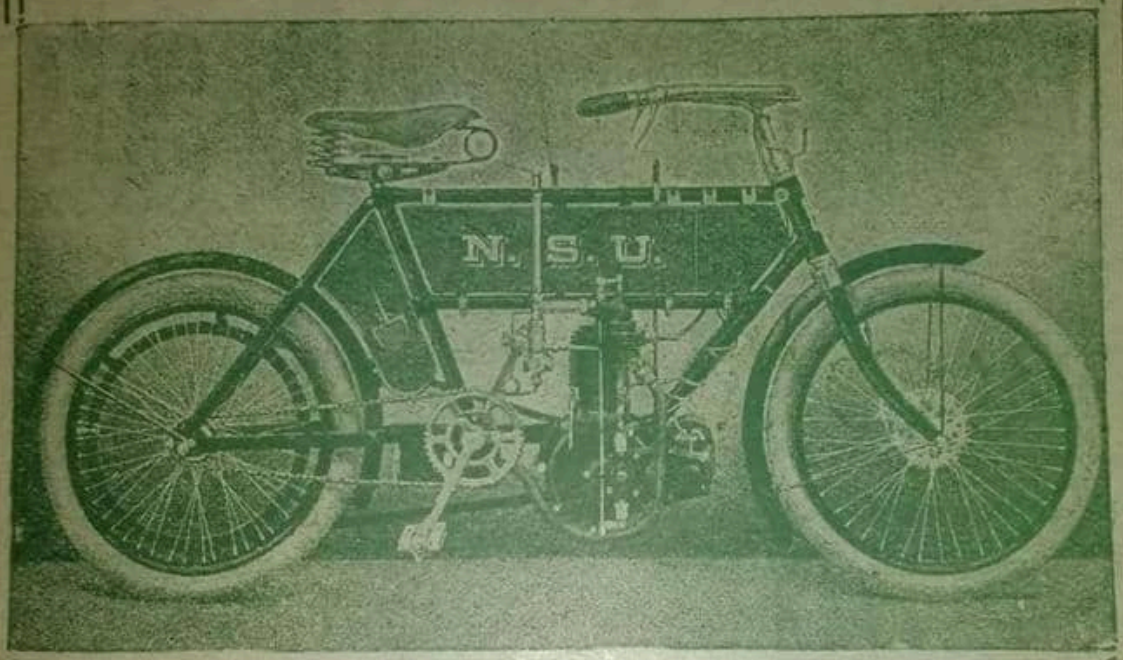

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are Seasons in advance of any make.

100 MILES RELIABILITY TRIALS

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THREE Machines entered, Three finished.

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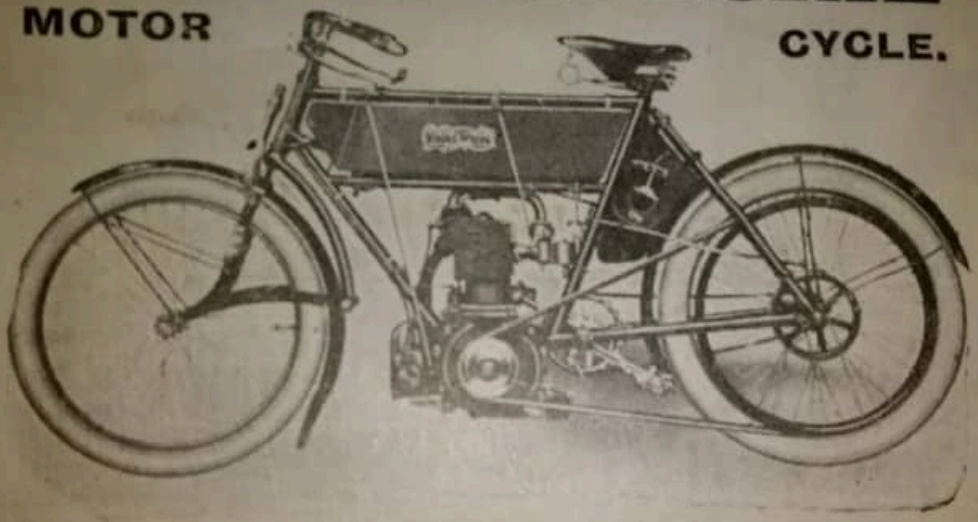

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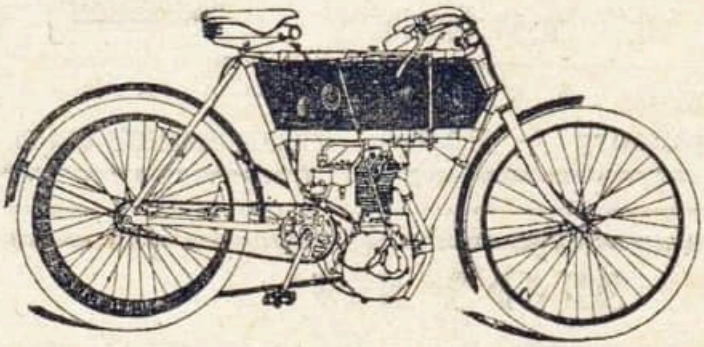

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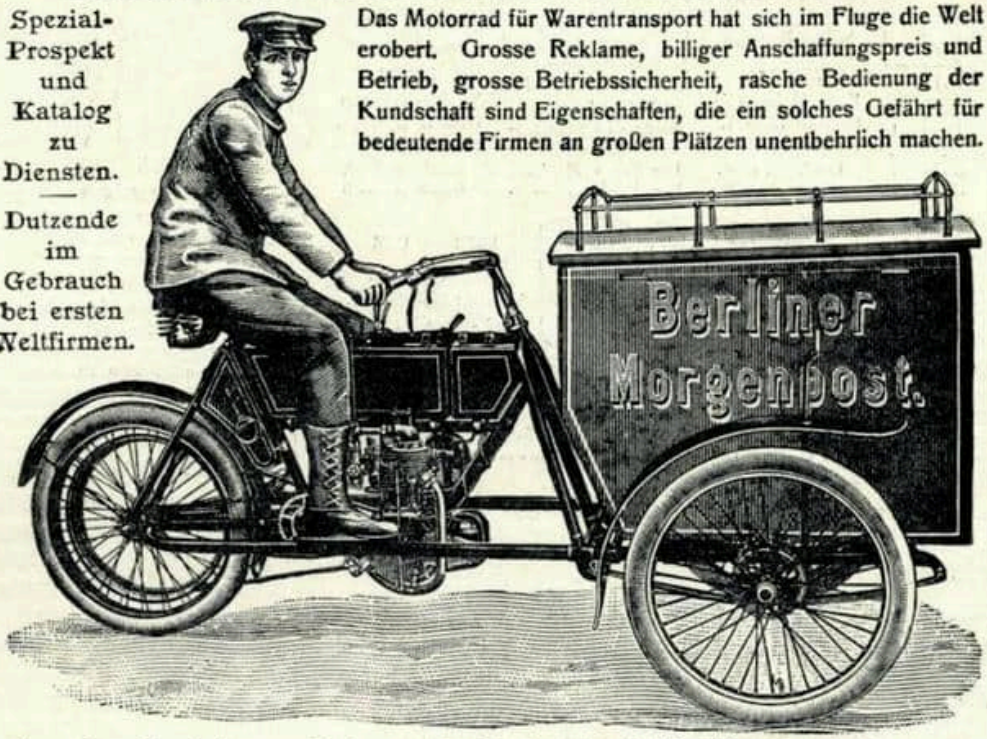

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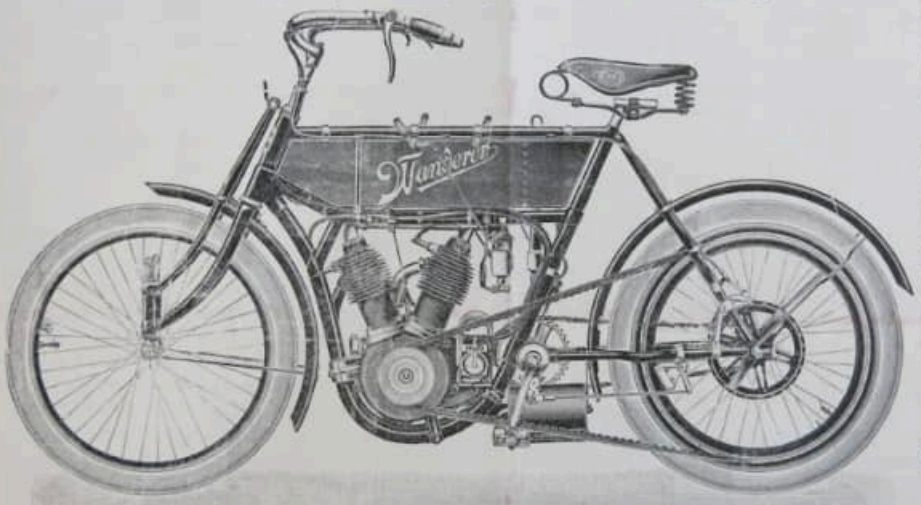
(854)

Motorová dvoukolka „WANDERER“

vyznamenaná při jízdách na velkou vzdálenost: Milán-Nizza, Berlín-Lipsko, Frankobrod-Berlín, Štutgart-Kiel.



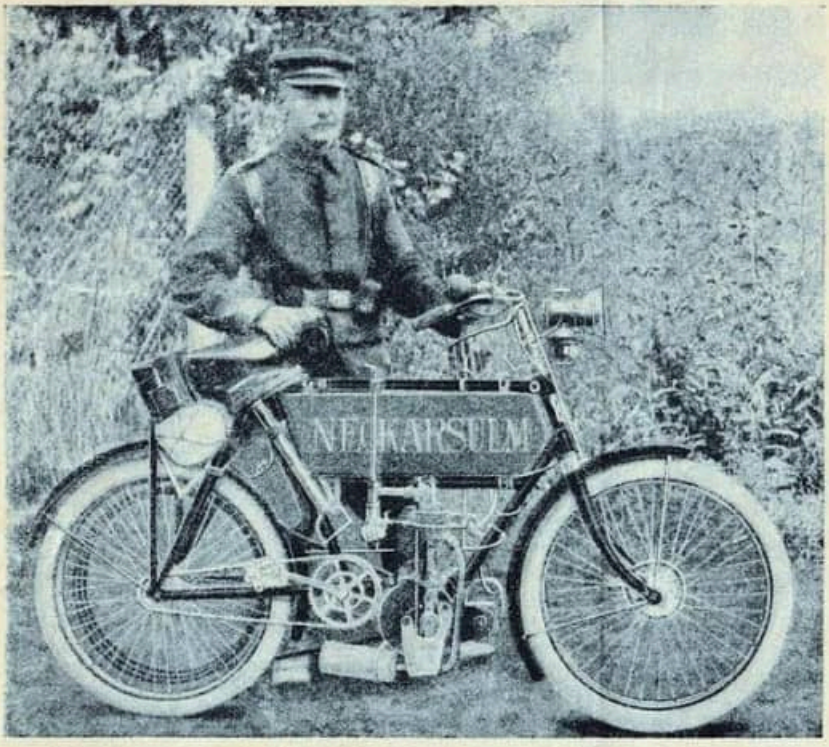
Jak dokázati lze, nebyla při žádném z četných, loňského roku prodaných motorů „Wanderer“ nutna výměna ani jediného dílku. Zajisté nejlepší vysvědčení o nejpřesnější a nejdůkladnější práci a konstrukci, tudíž naprosto nejspolehlivější dvoukolka motorová.

Nové typy 1905:
jednocylindrové o 3 HP,
dvoucylindrové o 4 a 5 HP.

Hlavní zástupce: Justin Löschner, Praha, Václavské nám. 7.

LA MOTOCICLETTA N. S. U.

montata dal luogotenente von SCHULTZE



nelle manovre imperiali germaniche ed in quelle di divisione, ha percorso quasi 3000 Km. su strade montuose e difficili, **senza alcun inconveniente,** come da certificato rilasciato.

Migliaia d'attestati

Accensione tanto ad accumulatori che a magnete rotativo.

HP. $2^3/_4$ - 3 - $3^1/_2$
con forcella elastica.

Specialità in Motofurgoncini per trasporto.

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BREVETÉE EN TOUS PAYS

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détenu par LANFRANCHI.

LE

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sur cette distance et pour cette catégorie de véhicules.

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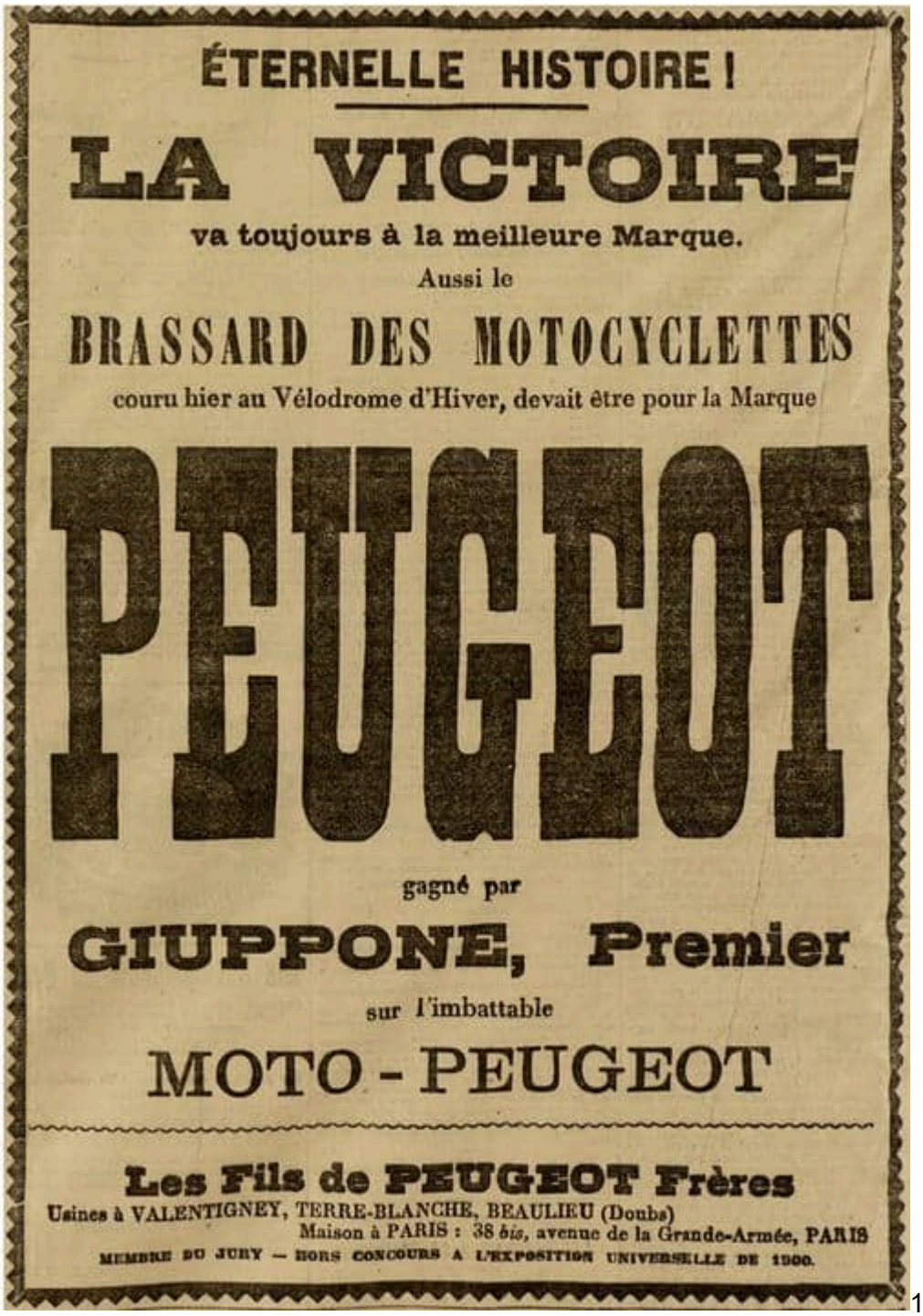
ÉTERNELLE HISTOIRE !
LA VICTOIRE
va toujours à la meilleure Marque.
Aussi le
BRASSARD DES MOTOCYCLETTES
couru hier au Vélodrome d'Hiver, devait être pour la Marque
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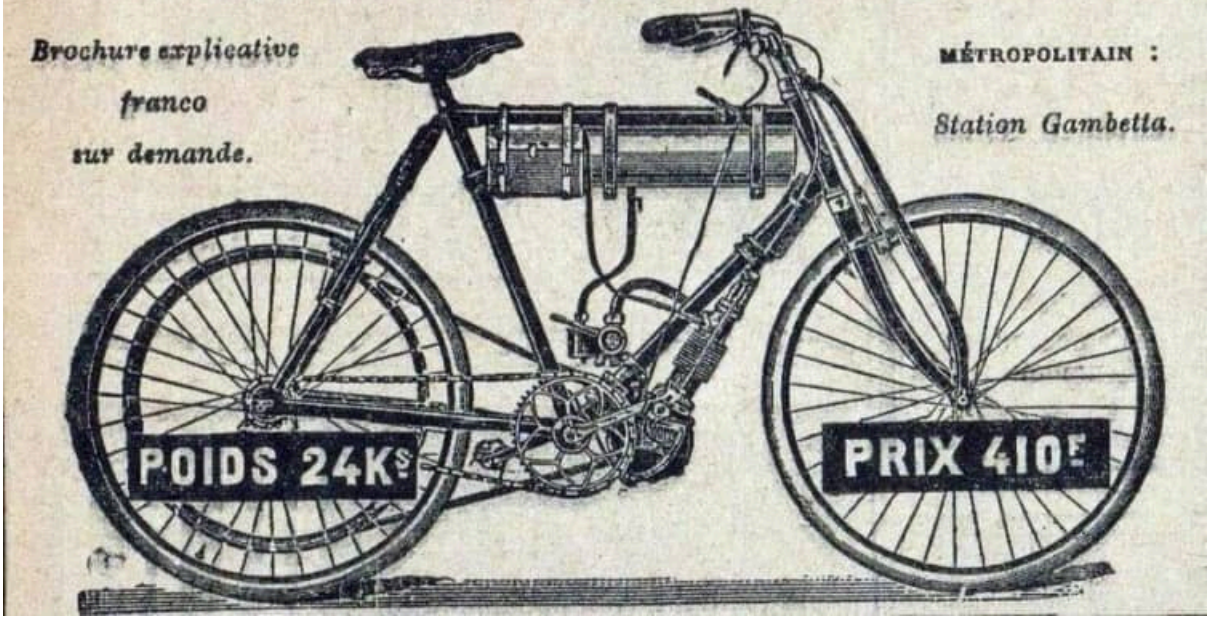

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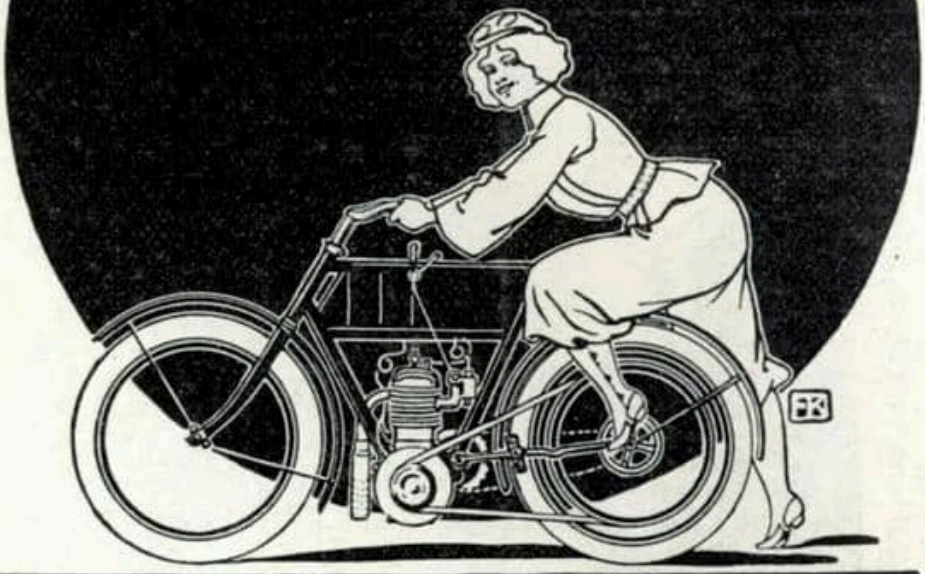
DÜRKOPP

MOTOR-RAD

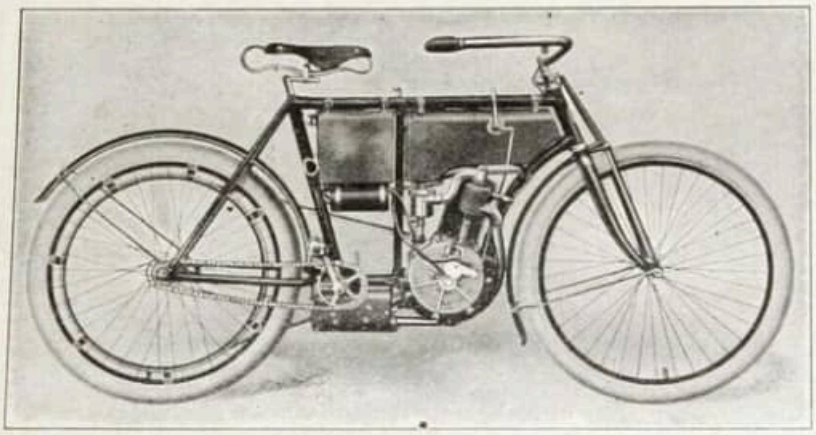


DÜRKOPP & Cº. A.G. BIELEFELD.

(189)

Industriehalle Deutsche Abteilung.

The Best is None Too Good



Model A

The Machine that takes you there and back. :: :: ::

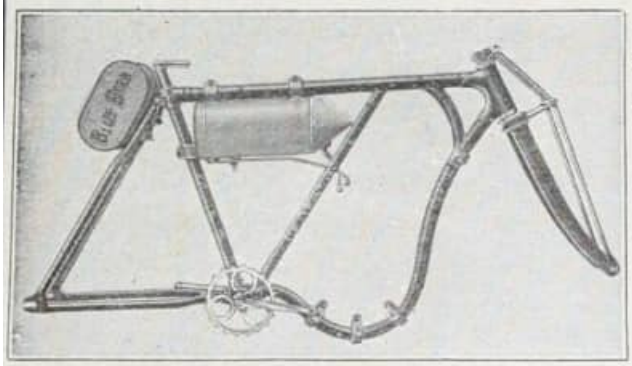
Fitted with 2-inch Dunlop Tires or Fiske Single Tube Tires and Wooden Rims.

Price, $165.00

Long wheel base, single lever control, automatic float carburetor. 5 quart gasoline tank, three horse-power motor, weight, 135 pounds. THE MOST SATISFACTORY MOTOR CYCLE BUILT. Agents wanted. Write for full particulars.

Crouch Motor Co. **Stoneham, Mass.**

Suitable for any size engine.



Geer Blue Bird Frame

Specifications—Distance between wheel centers, 51 inches. Height, frames, 20, 22, 24, 26 inches. Tubing, 10 ga. in curved bar, 14 inch balance. Forks trussed 1⅛ stem, takes ⅞ bar. Stem, 10 ga. Sides, 1½x14 ga. Head fittings, turned. Hanger, 3 piece export style. Cranks, cotter pin, style flat. Seat post, L or T style. Head, special re-inforced. Bracket Hanger, off set for belt. Seat post lug off set for belt. Gasoline tank, copper, holds 1 gal. Lubricating oil tank, holds 1 pint. Battery box, galvanized iron, re-inforced.

Price, frame only, $35.00. Price, forks, $5.00. Price, frame forks and tanks, $45.00. Price, wheels, $17.50 Discount to dealers.

HARRY R. GEER CO., 1016 Pine St., St. Louis, Mo.

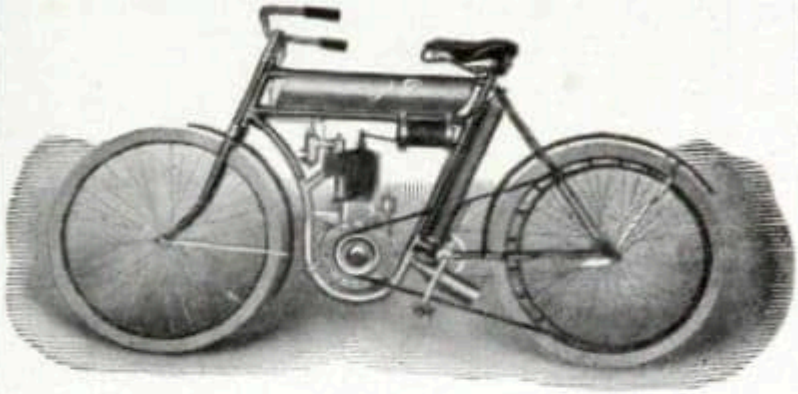
150 page motor cycle supply catalogue and second hand motor cycle list mailed upon request.

THE GEER MOTOR CYCLE

Not an experiment, but the result of experience. More new features than on any other motor cycle made. : : : : : : : : :
Our booklet will explain. The price, too, is an object. Write us. : : : : : :

HARRY R. GEER CO., St. Louis, Mo.

It Was an Armac



Stock Machine that won the 5 mile, OPEN TO ALL, MOTOR CYCLE RACE at the St. Paul Automobile Races July 8th and 10th.

Once more

The ARMAC V Belt

proves its superior transmission powers

Preparatory to moving into our new plant in CHICAGO where we will have unlimited facilities, we are making special inducements to secure agents in all unoccupied territory.

Permit us to quote you terms for immediate delivery.

ARMAC MOTOR CO.

ST. PAUL, MINN.

The Consolidation Metz Factories Best and Fastest in the

The world-renowned Metz motor cycle has attained the highest standard of perfection possible. Its up-to-date features that predominate over every other machine puts it in a class by itself. For speed durability, appearance and perfection in every detail, it cannot be approached.

Its double frame never breaks. Its original grip control is the only perfect grip control in use. Its method of lubrication, its arrangement of tanks, batteries, coil and other accessories gives the Metz that nifty appearance sought by others.

The Metz holds the hill climbing record, winning over all competitors at Prospect Hill, Waltham, Mass., August 8th. It also made the best average in the New York and Waltham Endurance run.

Manufactured by the American Motor Company, under the personal supervision of Charles H. Metz.

Agents Get in Line

AMERICAN MO-

BROCKTON,

of the Marsh and the Give Agents the Motor Cycles World

World's records were established by the Marsh Motor Cycle at Charles River Park track, August 19th, single cylinder machine doing one mile in 1.03⅖ seconds, flying start. September 9th, five miles standing start in 5.50. This shows what the Marsh can do when given a fair chance in competitions.

The Marsh is the fastest, most reliable belt driven motor cycle on the market, and has fewest parts in its construction.

The Marsh catalogue, the handsomest ever printed, gives full description and specifications.

Agents Get in Line

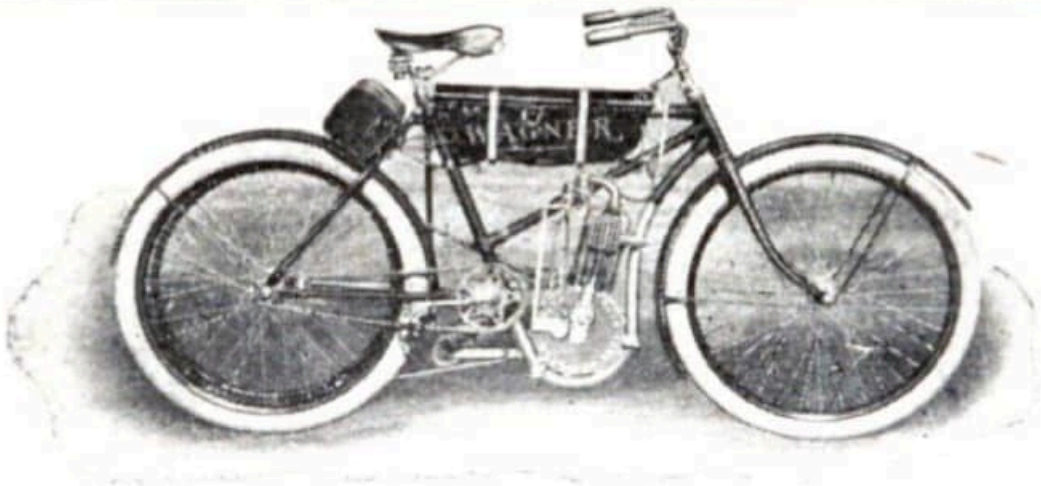
TOR COMPANY

MASSACHUSETTS

The Reliance

Best Motorcycle Proposition in the World.

RELIANCE MOTOR CYCLE CO., Addison, N. Y.



This machine is fitted with our improved belt adjuster, which permits of instantaneous adjustment of belt tension without dismounting from saddle.

TRY ONE AND BE CONVINCED

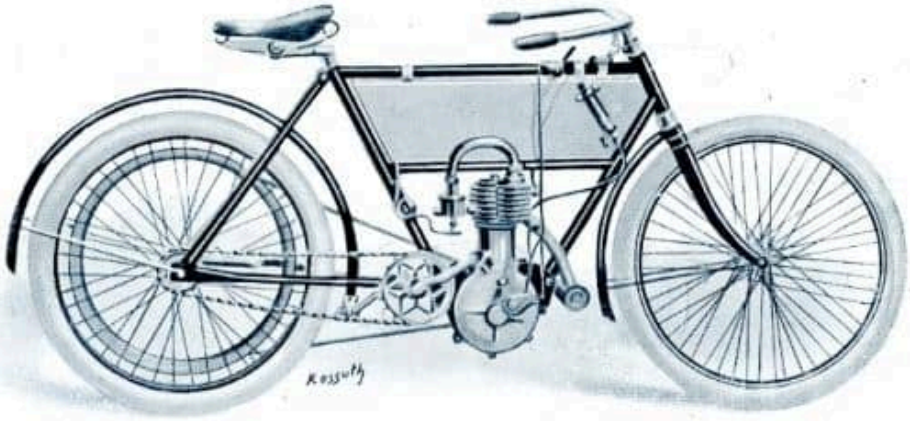
THE WAGNER MOTOR CYCLE CO.

327 St. Peter St., St. Paul, Minn.

Motocyclette "LA FAUVETTE"

PRIX

750 fr.



DESCRIPTION

Moteur J.-L. à 4 temps de 3 HP, 76 d'alésage, 85 de course avec leve-soupape d'échappement commandé simultanement par la manette d'avance à l'allumage ; cadre de 50 cm. spécial tres résistant ; guidon et selle spéciaux ; carburateur, Longuemare ; transmission par courroie trapézoïdale de 18 m/m. ; réservoir en cuivre nickelé contenant : 5 litres d'essence et un litre d'huile, logement pour la bobine et l'accumulateur, pompe extérieure à débit visible sur le côté ; deux freins sur la poulie-jante ; roues de 650 × 50 ; pneumatiques de marque ; vitesse moyenne 70 kilom. ; dépense environ 3 litres d'essence et 3/4 d'huile par 100 kilom. ; longueur totale de la machine 2 m. ; poids 55 kilos.

On peut monter sur cette machine une fourche élastique atténuant les cahots de la route. Voir page 5 suppléments.

SPECIFICATION

J.-L. four times Motor 3 HP, bore 76 mm., stroke 85 mm., with exhaust valve lever drived with the handle of advanced ignition ; strengthened frame, 50 cm. ; Longuemare carburettor ; trapezoid belt drive ; tank in brass and nickel holding 5 liters petrol and 1 liter oil ; reserved place inside for the accumulators and oil pump with the supply visible on the side ; two brakes. Wheels 650 × 50 ; speed 70 kilom. wants about 3 litres petrol and 3/4 litre oil per 100 kilom. Total length : 2 meters. Weight 55 kgr.

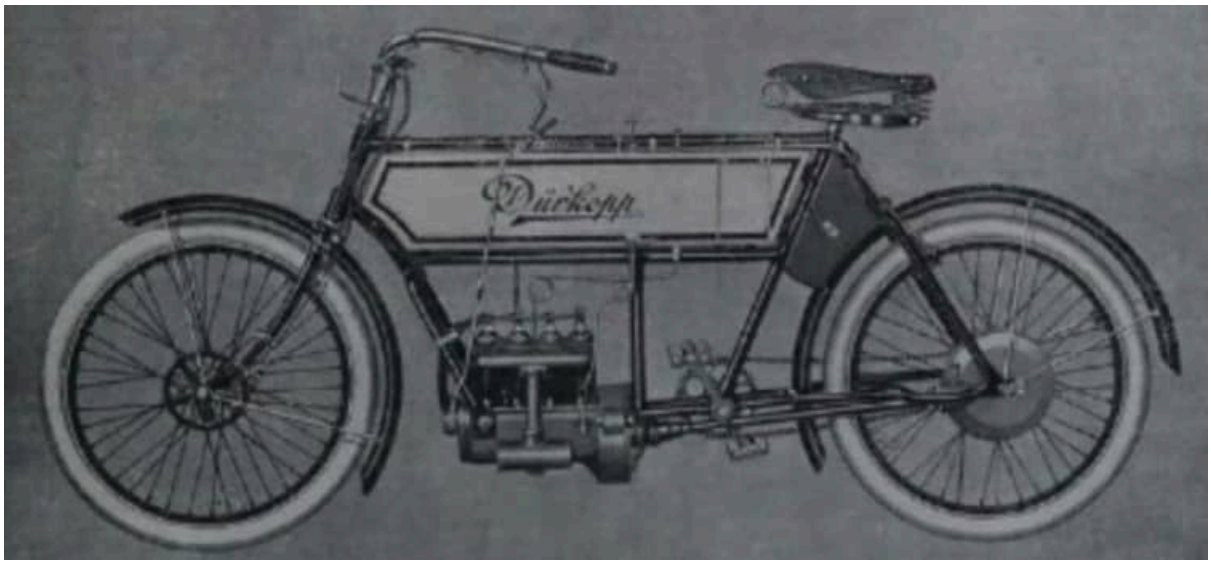
This motorcycle can be fitted with a springy fork.

MOTOCYCLETTES "LA SEMEUSE"

Modèles 1905 — Moteurs MIRUS

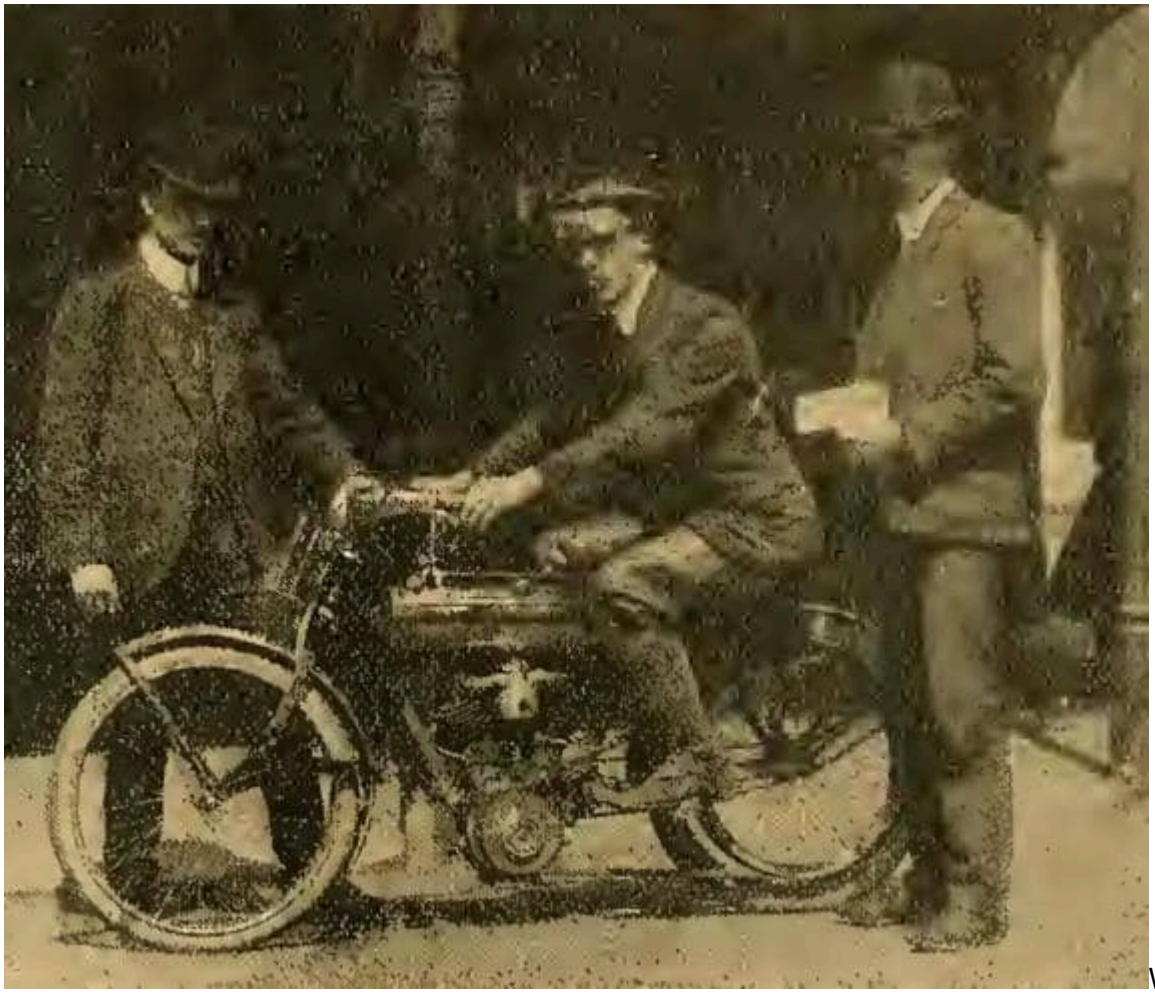
1906

FOURFOURSDEBUTEDatthe Berlin show: the German Dürkopp, Gluser and Burkhardtia, and the Austrian Bock & Hollander.



Thetidy four-pot Dürkopp debuted at Berlin.

WH KINGSETANAUSSIErecord by riding his 7hp Peugeot twin from Launceston to Hobart in Tasmania (121 miles of rough going) in 2hr 53min—an averageof 42.5mph—despite about 6min delays at two railway crossings. The22-year-old was born in Sleaford, Lincs. A UK correspondent noted the feat "shows the interest taken in motor cycle matters by our antipoidean brethren". However,Charlie (Matchless) Collier was distinctly unimpressed: "With reference to the extract from an Australian paper describing an Australian motor cycle record by WH King, in which comparisons were made of the respective performances of Mr Kingin his record ride and myself and brother in the [Coupe Internationale] English Eliminating Trials of 1906, I should like to know if in his ride he had to encounter V corners which necessitated slowing down to about 10-12mph every few hundred yards or so? Also, if his 80×98twin engine, as compared with my engine of 76×95, was restricted to a weight of 110lbs? Regardingthe query as to Mr King's ride being a world's record, I should like to recall such performances as that of Wondrick in the 1905 International Race or of Bucquet in the 1905 Circuit des Ardennes, both riders averagingover 54mph on roads anything but perfect, and with machines weighing under 110lb."

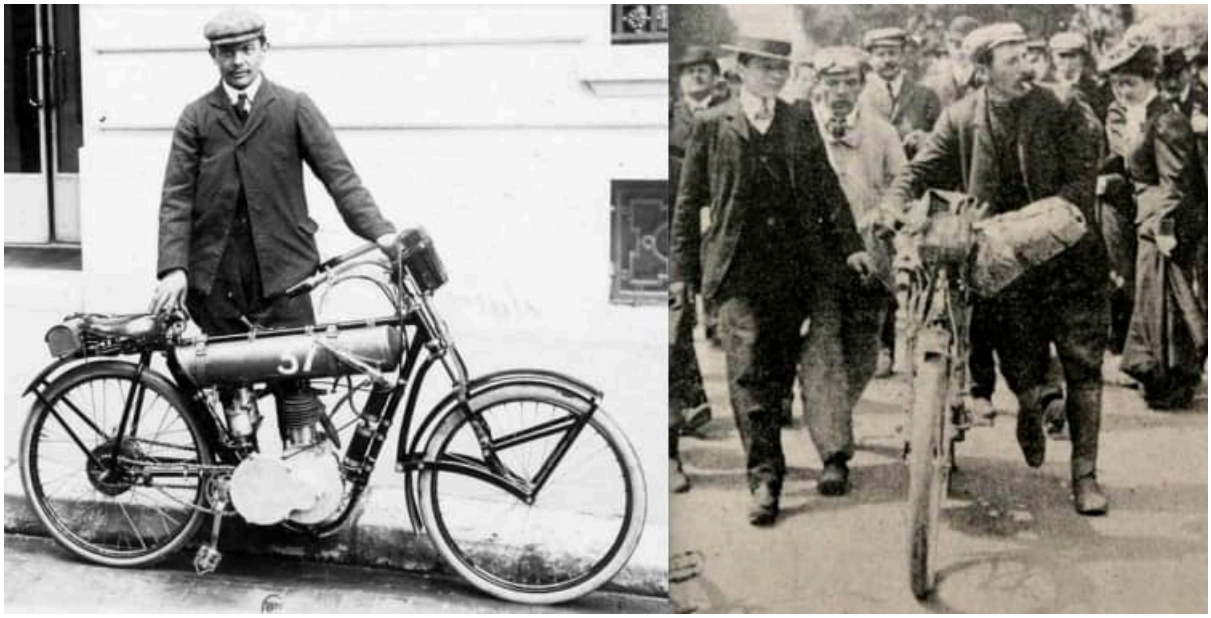


WH
King rode his Peugeot from Launceston to Hobart at an average of 42.5mph.

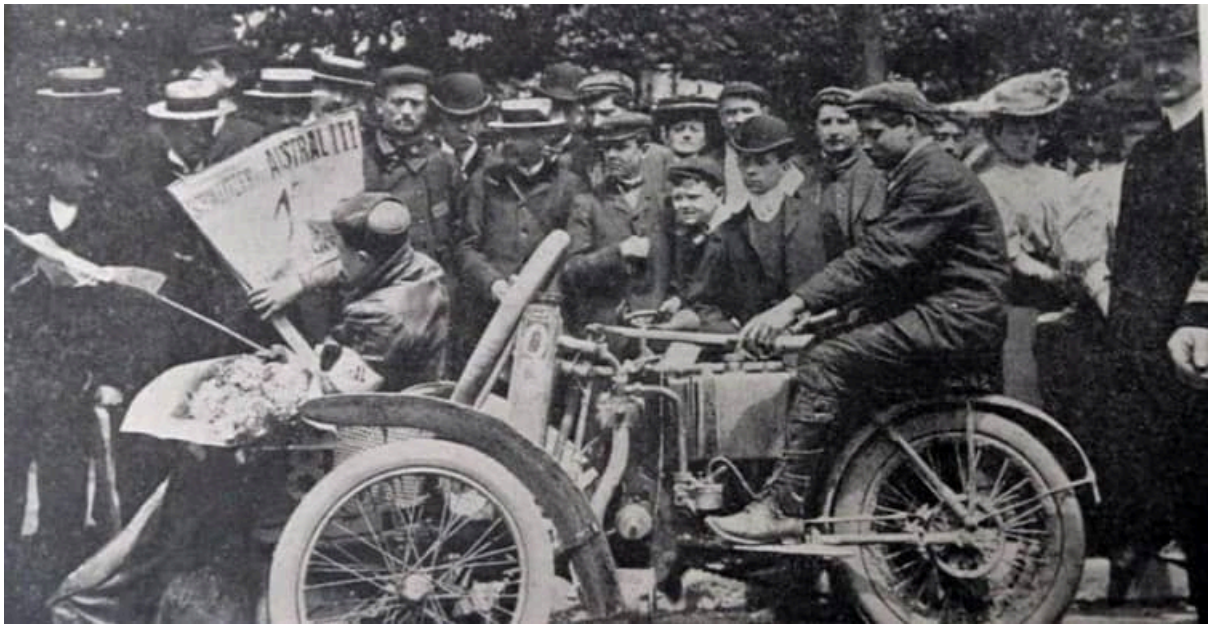
THE INTERNATIONAL CUP at Patzau, Bohemia (then Austrian, now in the Czech Republic) was only the second Coupe Internationale to be held under the auspices of the Fédération Internationale des Clubs Motocyclistes (FICM). Austrian riders □ðnished □ðrst and second to win the cup—but delegates of the participating countries (Austria, France, Germany and Great Britain) met at a race meeting in Bohemia and unanimously decided to dissolve their new federation. Well, nearly. In fact the ACU kept the dream alive. Within a year the Brits would changed the world of motor cycle racing with the launch of the TT, and within six years they would revive the FICM. "Here's Ixion's memory of the Coupe Internationale: "Five entries were secured for the eliminating trials, and at one time it seemed that no course would be available, but Lord Derby □ðnally oīered a □ðve-mile course in Knowsley Park. CR Collier completed 27 laps at an average speed of 40mph. HA Collier and CB Franklin completed the team. We were again defeated, if not disgraced. The International was run oī on Austrian soil at Patzau. Harry Collier □ðnished third, nearly half an hour behind the winning Puch. It was rather a free-and-easy race, for though the rules stipulated that only competing machines were allowed on the course, the Austrian riders were assisted by racing sidecars full of spare parts and tyres! Our protest was naturally turned down."

Ed Nikodem (Puch)won the International Cup race for Austria, ahead of his team-mate Obruba.

TheBritish team in Bohemian International Cup Race: CB Franklin, Harry Collier and Charlie Collier. Harry □ðnishedthird.



Giuppone and Cissac were two of the most formidable riders in the planet, their Peugeot'swere among the most formidable mounts; both rode in the Tour de France; Cissac won the day.



This tricar is an Austral, piloted Thomas Schweitzer in the 4,000km 'Tour de France Automobile'. He won the tricar class, ahead of two other Australs.

THEDRUIDSPRINGFORKwaslaunched as front springing appeared on all but the cheapest utility mounts. Rexlaunched what might have been the wborld's □ðrsttelescopicfork; Triumph opted for a horizontal spring giving its forks a rocking motion. Rexalso claimed "the largest output of any motor cycle company in the world".

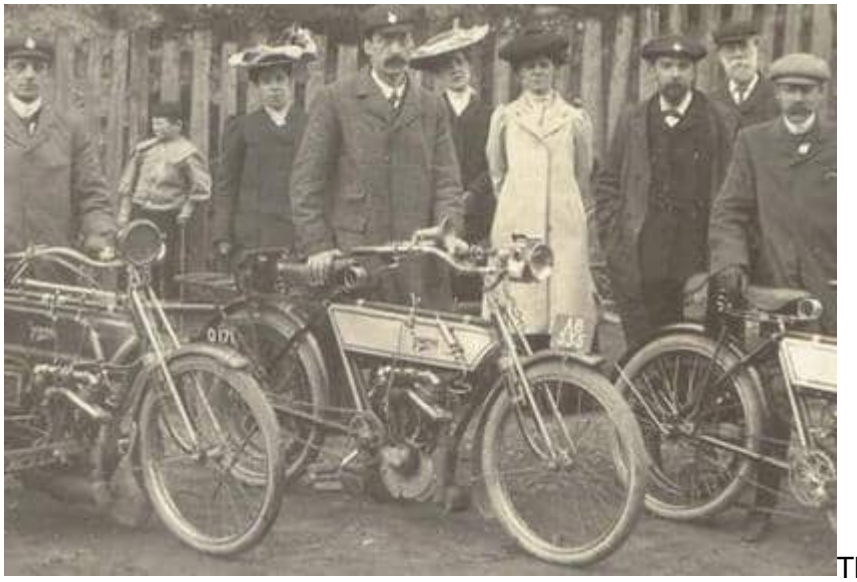
SIDECAROUTFITSoutsold tricars for the □ðrsttime.

"LASTWEEKWEreproduced a photograph of a group of over 20 Newcastle motor cyclists. On investigation we were surprised to □ðndthatthere are only three British made machines among them, only two—one tricar and one motor bicycle—being of standard make."

THERACORGANISEDaseries of speedometer trials.

“I SEETHATINTheMotor Cycle you bring forward the suggestion of having a motor bicycle Tourist TrophyRace…Asthe race is intended to foster touring machines I think a fuel limit of ninety miles to the gallon would be preferable, thus allowing the more averagetype of touring machine to compete. I □ðndbycalculation that an 8Ox80[400cc] engine to climb a gradient of one-in-six with the minimum weight would be gearedabnormally low for a touring machine (ie 6¾-to-1). Of course, this would encourage change speed gears, which may or may not be desirable. Thesuggested weight allowances and absence of pedalling apparatus seem excellent.—(Reader’sletter.)”

THENORTONRANGEINCLUDEDa 700cc Peugeot V-twin–French ace Henri Cissac rode a 110lb, 16hp (2,500cc) Peugeot-enginedmotor cycle at a world record 87.3mph. But away from the race tracks the once-dominant French industry was beginning to stagnate.



Thenew Norton twins were prominent in the Birmingham MCC’s race at RoseHill.

EXACTLY1,747MOTORCYCLESwereimported into Britain, 739 were exported. And exactly 26,792,687 gallons of petrol were imported (up from 18.658,391 in 1905 and 11,972,459 in 1904.

“We know of a reader who has on several occasions ridden from Birmingham to London and back in a day, He uses his motor bicycle in his business as a builder, and □ðndsitindispensable.”

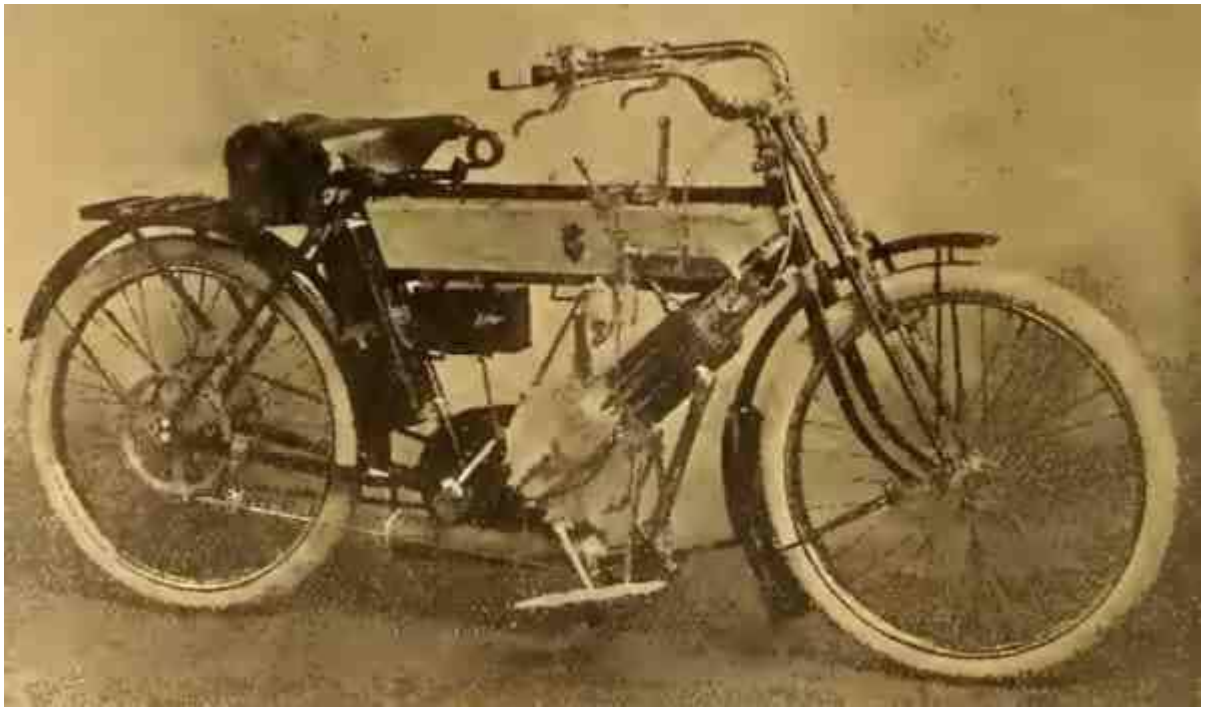
“AT THEHATFIELDPoliceCourt on the 30th Ult Mr CD Clayton was summoned for driving his 2¾hp Minerva over a timed distance of three miles at a speed—according to the police—of 45mph. Mr F Straight, secretary of the Auto-Cycle Club, gaveto evidence to that to drive a 2¾hp machine at the speed alleged was impossible.”

HARLEYDAVIDSONLOSTits □ðrstemployee.Perry E Mack set up his own company to produce single-cylinder ohv Waverley engines; before long he was making complete bikes. He graduated to twins in 1910.

IN THE1906 YALE-CALIFORNIAcatalogue the makers claimed: “We were the □ðrsttouse the spring front fork on a motor cycle”.

A year after its launch the 3hp Crouch motor cycle, made in Stoneham, Mass, was □ðttedwitha deeper, shorter fuel tank which was said to hold enough fuel for 100 miles.

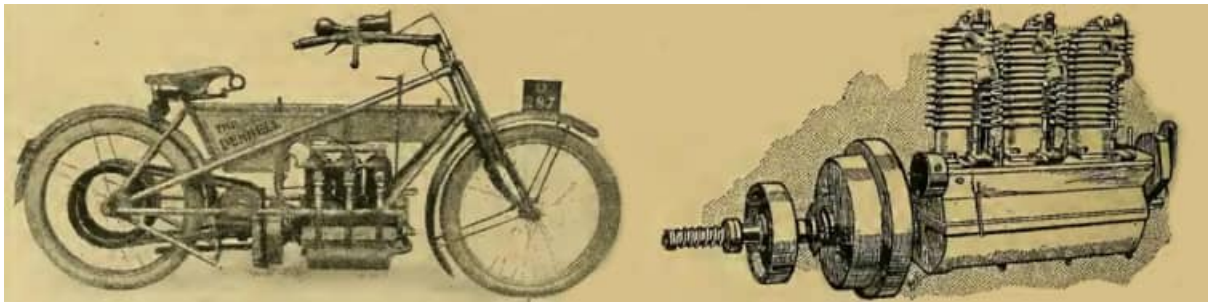
FROMA SHOWREPORT:"Amachine that is worthy of special mention is the 3½hp Phelon and Moore. As a thoroughly up-to-date motor bicycle possessing all modern requirements the 3½hp Phelon and Moore stands pre-eminently in the □ðrstclass.Theframeis so low that the rider's feet can easily reach the ground; the engine also, which should be of ample power for the most fastidious rider, is suspended low down in the frame. No pedals are □ðtted,norarethey needed since the machine is □ðttedwiththe □ðrm'swell-knowntwo-speed gear and chain drive. The handle-bars are long, the saddle is set well back and good footrests are provided; consequently, the rider's position is most comfortable. Gasis supplied to the engine by a Vapp carburetter (sic) □ðttedwithtwo throttles, one over the spray chamber, and the other—a Bowden—is an auxiliary one controlled by a twist handle. Two good brakes are □ðtted,therearone being a large brake band controlled by a pedal and the other a good-sized rim brake on the front wheel. Excellent spring forks are also provided. Theworkmanship and □ðnishareofthe highest order and leave nothing to be desired."



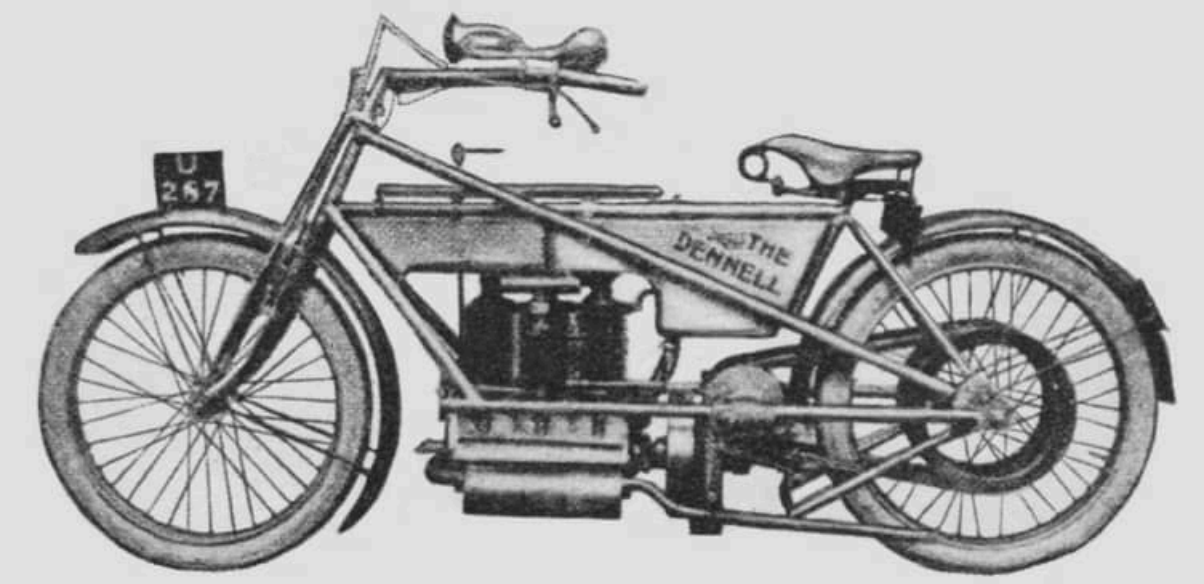
Phelon & Moore were early proponents of chains rather than belts.

HARRY MARTIN SNAPPED up world records from 100-200 miles aboard a Kerry at the Canning Town track.

THE RIDER OF A 3½hp Minerva who wanted to take his pal on a tour of France found a novel alternative to a trailer or sidecar: "We fell back on the idea of having a kind of glori□ðed luggage-carrier, which should be strong enough and large enough to carry a twelve-stone passenger. It was fastened in the usual way to the back stays of the machine. The back struts were of heavy gauge tubing, □ðattened at the end and drilled so as to slip over the ends of the back axle. A couple of pedals from an ancient 1893 Rover bicycle were □ðtted below the bottom stays at 4 1/2in from the ground, and formed excellent footrests. Narrow handle-bars were □ðtted to the saddle pin. When starting, the modus operandi was this. I mounted the machine, and was pushed of by my chum. As soon as the engine started he jumped aboard and away we went. The extra load of passenger and luggage made surprisingly little diīerence to the running of the machine."

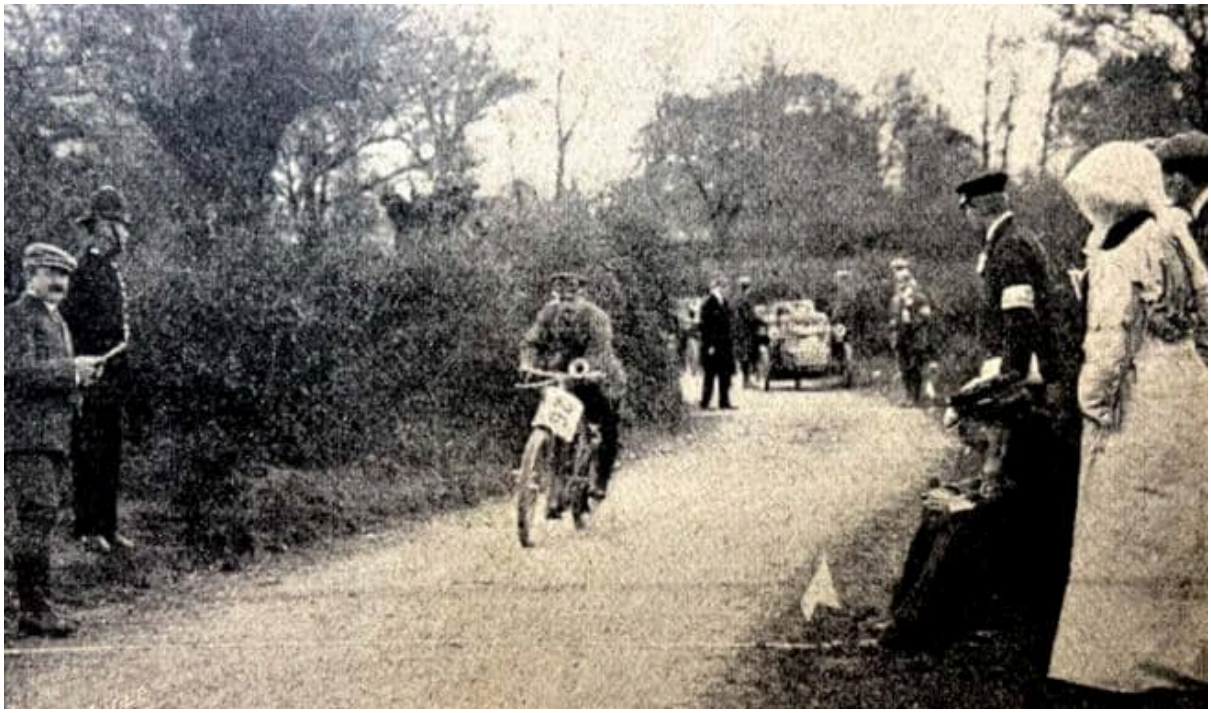


Herbert Dennell of Leeds started building motor cycles in 1903, using engines by NSU, Minerva and JAP; in 1906 he built a bike round JAP's latest model, a 660cc triple. Rather than using shaft drive an open worm gear transmitted drive from the □ðywheel to a countershaft with belt □ðnal drive.



The Dennell was powered by a JAP triple.

"THE ESSEX MC OPEN HILL CLIMB ON LIPPETT'S HILL. In the midst of a most picturesque part of Epping Forest there is a range of hills, short, but rather steep, all leading up to a tableland on the summit. The King's Oak, High Beech, stands at the top, towering majestically in an ideal position. The country can be seen in all directions for many miles around, and this was the spot selected by the Essex Motor Club for its open hill-climb. Lippett's Hill is one of the hills on the range, and leads up from the Sewardstone Road to the High Beech. It is approached by leaving the by-road which leads to the historic Waltham Abbey and continuing along a pretty and winding lane to a fork of roads, the right fork of which brings the motor cyclist to the scene of the contest. The view is a pretty one, and the hill, being almost straight for the greater part of the distance, aïords a □ðnespectacle of the competition. The gradient is very deceptive, and varies at almost every few yards, the last portion being 1 in 6 for a few yards, and the average gradient being 1 in 14. The length from tape to tape was 489 yards. The afternoon did not look promising, but the sun shone and dispersed the shower clouds. It is remarkable to note the amount of interest which is taken in motor hill-climbs, and this occasion was no exception to other competitions we have attended, the whole course being well lined with appreciative spectators. Perfect organisation was noticed everywhere; long before the □ðrst competitor had started, stewards were in their places with red and white □ðags to signal the course from end to end, and they did their work without a hitch. Mr A Geo Reynolds had all his oīicials in their appointed positions and ready to proceed, when word came that the police had prepared a course of 220 yards on the easiest portion of the climb. This caused much consternation to the competitors and all concerned, but, to cut a long story short, diplomatic relations resulted with those in authority, and the plain clothes men timed away to their hearts content. The times were taken from a □ðying start, thus giving all competitors an equal advantage.



“The EssexMotor Club Hill Climb. EJBass, the □ðrstcompetitorto be despatched up the hill, on a Bat.

Therewas a complete absenceof traīic on the hill, and competitors ascendedwith clocklike regularity. Below we givefull particulars of the machines and remarks regardingthe performance of each. Forobvious reasons the times havebeen withheld. Thepromoting club received valuable assistance from the South Herts AC, and we are informed that it was through the latter club’s in□ðuencethatthethreatened police interference was smoothed over. The judges were Messrs GF Sharp, AV Ebblewhite, and AJWilson; timekeepers, Messrs F Straight and JHBurley; handicapper, Mr F Straight. At the termination of the competition tea was served at the King’s Oak, High Beech, and followed by an impromptu smoking concert in the large hall. Thewinners of the bicycle handicap are the following: Hulbert □ðrst,Bricesecond,Cooper third. As regardstime, Brice was fastest, Wells second, and Hulbert third. In the members’ class Stanley Webb was □ðrst.FWApplebeesecond, and Summers third. In the passenger motor cycle class Hodgkinson was □ðrst,Cozenssecond,and O’Reilly third. Cozens also won the private owners’ section in the passengerclass. Although cars up to 22hp competed in the EssexMotor Club’s hill-climb, a member’s 3½hp motor bicycle easily made the fastest time of the day. Mr AJ Wilson, one of the vice-presidents of the EssexMotor Club, has kindly oīered a gold medal to the winner of a best performance for a genuine

OC Godfrey tackling the steepest portion of the climb."

touring machine, limited to 3hp. The club oīicials are now considering how it shall be decided." [***Here are the results of the Essex hillclimb. As published they included bore/stroke ĭgures which I've converted to cc—it would be a good few years before capacity ĭgures were routinely published. It's also interesting to note the weight of the machines and I did enjoy the brief coments on their performance—Ed.***] 1, WJ Feare, 5hp [616cc] 2-cyl Kerry, good start, climbed well; 2, W Hodgkinson, 3½hp [431cc] JAP, 145lb, good start, climbed well; 3, AH Elston, 8hp [804cc] 2-cyl Lurquin-Coudert, 200lb, good; 4, HL Cooper, 3hp [363cc] Triumph, 145lb, slowed on steep portion; 6, CE Fell, 5hp [292cc] 2-cyl Waltham Cross, 206lb, engine mis□ðred; 7, 0C Godfrey, 4hp [430cc] 2-cyl Werner, 156lb, good start; 8, CE Helstrom, 5hp [616cc] 2-cyl Kerry, 180lb, dismounted; 10, WH Applebee, 3¼hp [401cc] Rex, 182lb, just managed to reach top; 11, C0 Prentice, 4hp [482cc] Lynx, 186lb, slow; 12, OL Summers, 5hp [678cc] 2-cyl Vindec, 185lb, poor start, but gained speed on hill; 13, Stanley Webb, 3hp [453cc] Quadrant, 170lb, good; 14, C Leroni, 3hp [475cc] Brown, 165lb, very good; 15, WH Wells, 5hp [678cc] 2-cyl Vindec, 165lb, splendid performance; 16, L Belinger, 3½hp [453cc] Quadrant, 160lb, very good; 17, FW Applebee 3½hp

"A general view of Lippett's Hill, the scene of the Essex Motor Club's Open Hill Climb on the 28th ult."

[411cc] Rex, 200lb, slow; I9, A Peppercorn, 2¾hp [345cc] Regina, 183lb, dismounted on steep portion; 20, RM Brice, 3hp [465hp] Brown, 148lb, splendid performance; 21, AE Lowe, 2¾hp [345hp] Phoenix, 190lb, slow, low speed; 22, HC Horswill, 2¾hp [345cc] Bat, 200lb, failed to climb hill earlier in afternoon and did not start; 23, GE Revill, 3¼hp [427cc] Iroquois, 185lb, failed to climb hill earlier in afternoon and did not start; 24, JPerkins, 2¾hp [345cc] Bat, 210lb, failed to climb hill earlier in afternoon and did not start; 26, EJ Bass 3½hp [402cc] MMC, 200lb, fair; 27, F Hulbert, 3hp [363cc] Triumph, good start, excellent; 28, AW Browne, 8hp [804cc] 2-cyl Lurquin-Coudert, 210lb, slow for two cylinders; 30, HE Blackney, 4hp [430cc], 2-cyl Werner, 150lb, good; 33, F Classen and Co, 5hp [707cc] 2-cyl GB, 165lb, poor start but fair climb. Passenger Motor Cycles: 46, T Read, 9hp [1,033cc] 2-cyl Singer, 9cwt, good; W Hodgkinson, 6hp [731cc], 2-cyl, JAP, fast; 47, JVan Hooydonk, 6hp [706cc] 2-cyl Phoenix, 5½cwt, good; 45, F Cozens, 10hp [1,221cc] 2-cyl Lagonda, 600lb, very good; 5, FP O'Reilly, 4hp [427cc] CIE, 3cwt, fast.

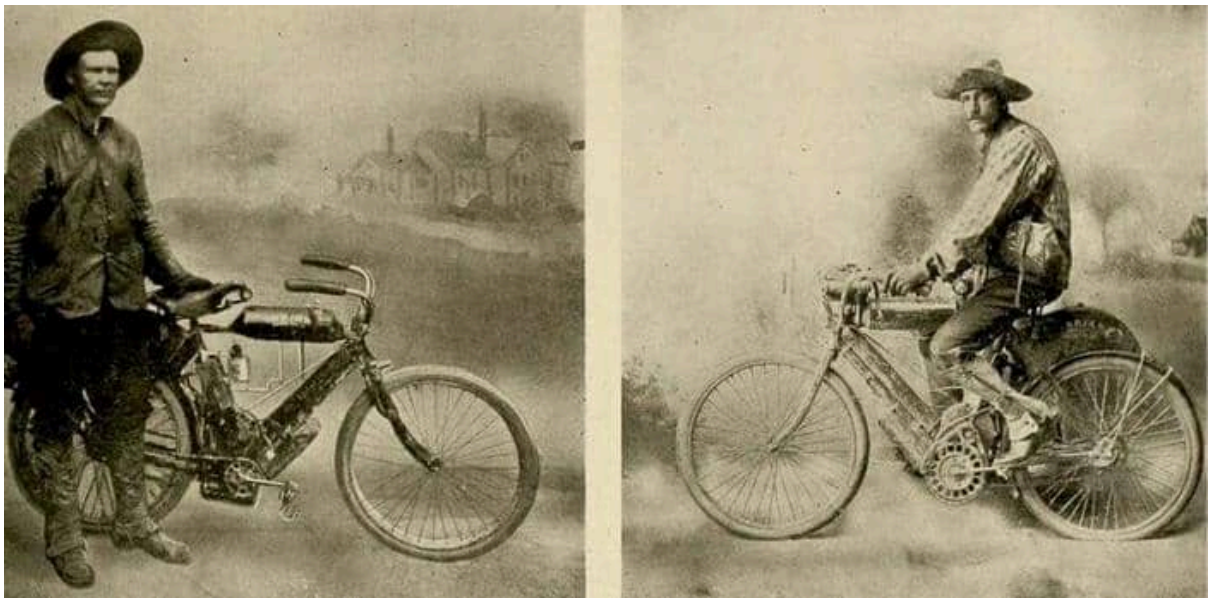
"FP O'Reilly on the lowest powered tricar in the competition."

"C Prentice, about half way up the hill."

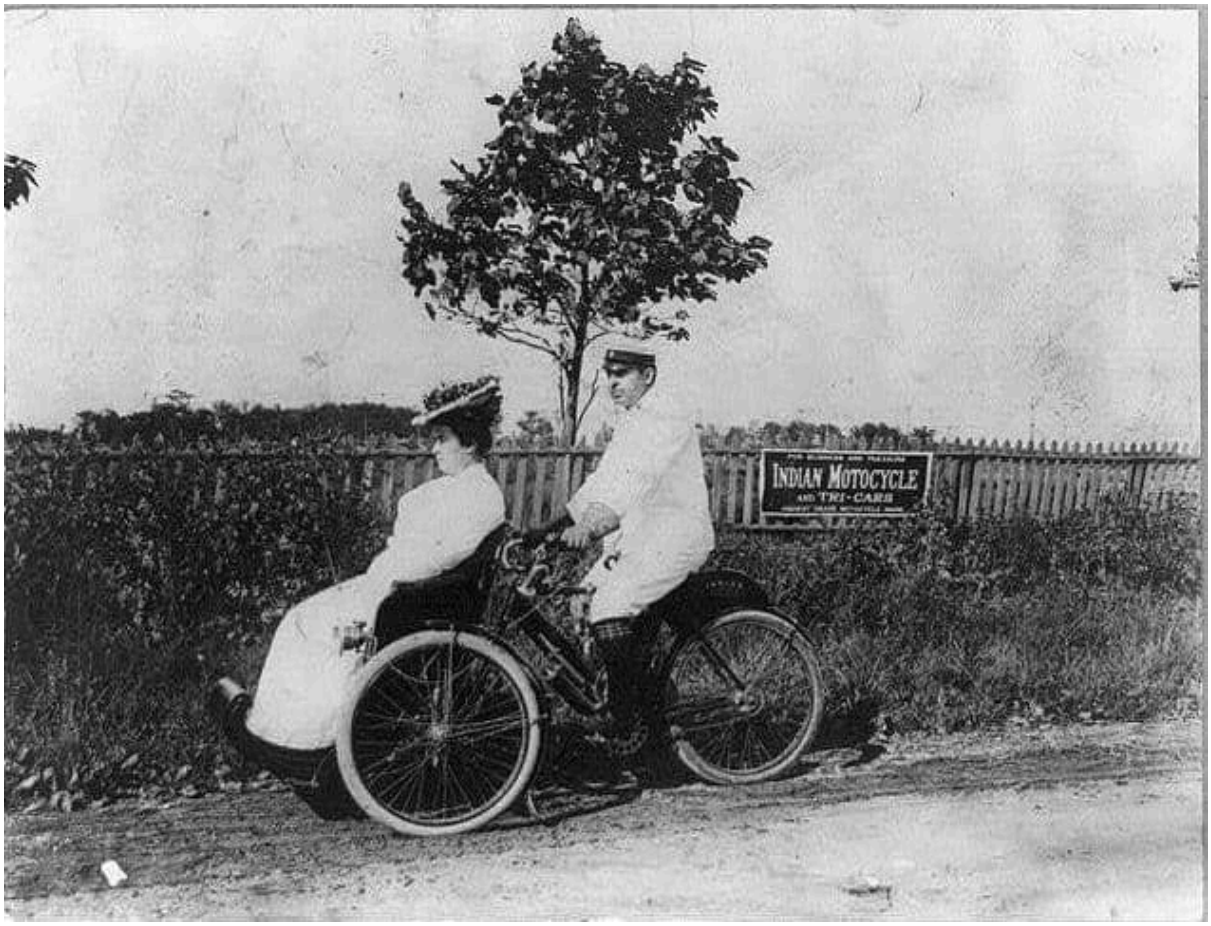
THE FEDERATION OF American Motor Cyclists awarded a gold medal to the members who covered the most miles and rode in the most states. ME Topel of New York won the mileage medal with 3,069.5 miles; FW Hoienburg, also of New York, won his medal for riding in six states.

INDIAN DEALERS GEORGE HOLDEN (of Cleveland) and Louis J. Mueller (of Spring□ðeld) rode 1¾hp Indians from San Francisco to New York City in 32 days without any major mechanical problems. Indian also launched a 633cc 42° V-twin racer which went on to become the □ðrstina long line of illustrious American V-twin roadsters.

Messrs Holden and Mueller, about to head east from an Indian dealer in San Francisco…


…andhere they are, in what look to be studio poses, at the end of their trans-continental jaunt.

Indian's 1¾hp single proved itself by crossing the USA, but it was about to be joined by the V-twin that would make Indian world famous.

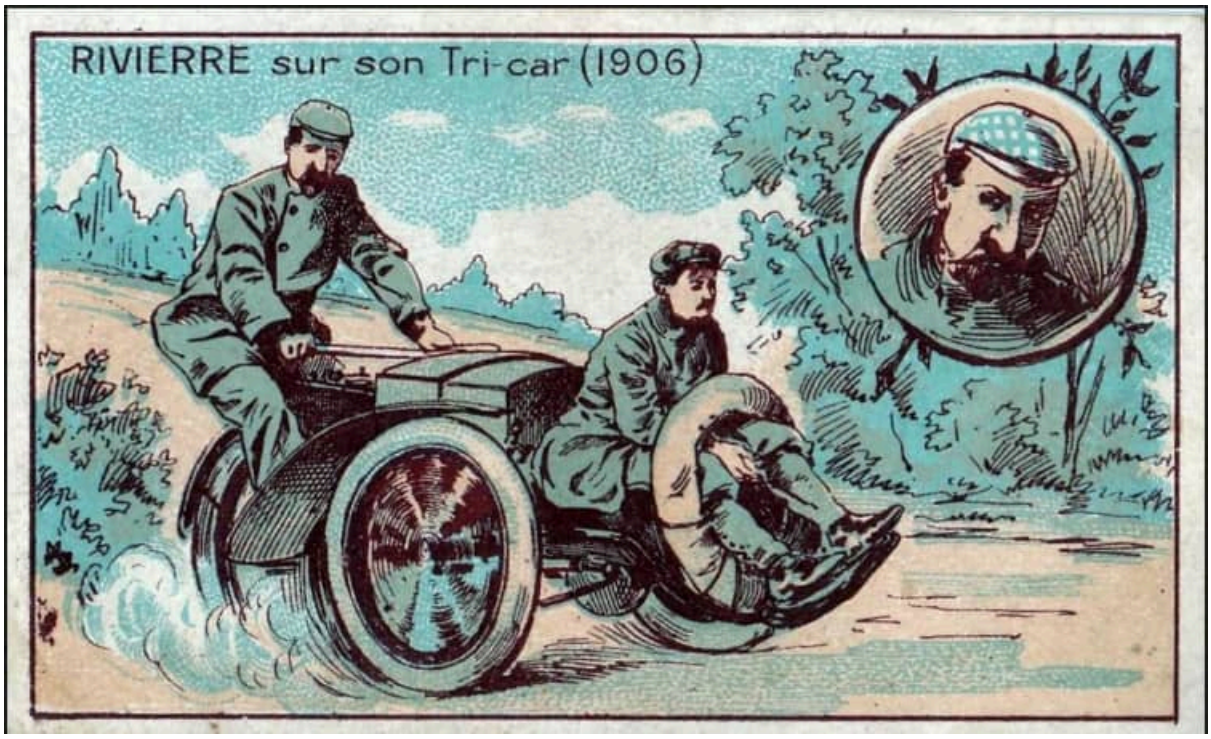


You'll □ðndanynumberof Indian solos and combos in the timeline and the Melange picture gallery, but here's a rarity: a forecar (note the 'motocycle' ad on the fence).

“THE ANNUALCONFERENCEbetweenthe Dublin and Belfast Centres of the MCUI was held at Dundalk. It was decided to complete the new agreementwith the Auto Cycle Club, and to join with that body and the Scottish Cyclists’ Union in aīiliating with the International Federationof Motor Cyclists. A member of the Belfast Centre to be nominated by that body was appointed to act as general secretary of the Union for the current year, the appointment to be held by a member of each centre in alternate years. Theconditions of the Triumph Challenge Cup for the inter-branch reliability contest were arranged, and the date of the event □ðxedforJune9th.It was unanimously decided to ask the editor of TheMotor Cycle to act as referee in the event of any disagreement between the two centres as to the interpretation of the conditions of the Triumph Cup.”

“WE AREINFORMEDbyMr JBKing, secretary of the British Empire Motor Trades’ Alliance, that in the Zomba Protectorate in British Central Africa there are a good many roads for ordinary traīic, but none of these have been metalled or otherwise hardened. The surface, however, is excellent for six months in the year, during the dry season, when not a drop of rain falls. There are four motor bicycles now running successfully in this country, and it appears that manufacturers in England might do well to make inquiries regarding the possibility of increasing this number.”

“A RACEORGANISEDbytheCannes Motor Club on the 29th ult resulted as follows: Motor bicycles—1, Yourassoī, Peugeot, Dunlops; 2, Bompard, Alcyon, Dunlops; 3, Raynaud, Werner, Dunlops. Tricars—1, Sivan, Mototri-Contal, Michelins. The best time was accomplished by Yourassoī, viz, 4hr 12min, or an average of just over 26mph. Thetricar speed equals 16.1mph.”



Gaston Rivierre was closely associated with the Contal company. Camille Contal had been a champion cyclist; his products evolved from bicycles via electric vehicles to tricars.

This 6hp Quadrant 'tricar' carette' is a rare survivor which will soon celebrate its 120th birthday.

…and here's a well-worn trike parked in the wonderfully wide highstreet in Saint-Pierre-du-Vaudreuil in Normandy.

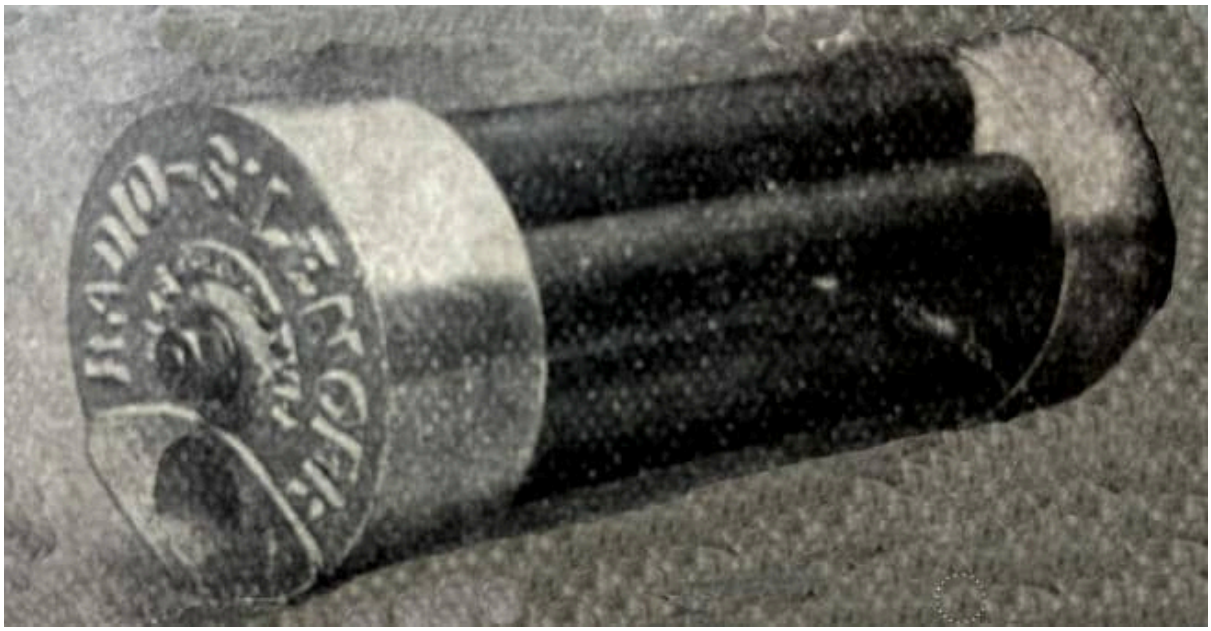
"PORTABLE ACCUMULATORS, LTD, advise us that under their subscription scheme they are willing to make arrangements with clubs to forward the batteries of members in one consignment, thereby saving the cost of carriage on single batteries. In districts where there are no clubs, and a number of unattached riders acquainted with one another, they are

recommended to co-operate by subscribing to the scheme, and sending their accumulators collectively for exchange."

"A CYCLING CLUB held a paperchase on Saturday, the riders following a trail laid by a motor cyclist over a 25-mile course."

"IT IS INTERESTING to note that nine light motor bicycles under 50kg=110lb have been entered for next week's Tour de France reliability trials…The entries now consist of 15 motor bicycles, 17 tricars and 15 voiturettes."

"DESPITE THE DECISION of the MCC committee at the extraordinary general meeting of the above club, 106 members' votes were recorded in favour of Mr Wells's notice that motor bicycles should be started at least one hour before the cars. Against, □ðve! Mr A Candler is also to be commended for the fair manner in which he made use of his proxy votes when he found the overwhelming majority against the decision of the committee…during the evening Mr Van Hooydonk announced that hitherto 34 motor cycle entries had been received for the Edinburgh run, and only two car entries."



"The illustration herewith is that of a new silencer which will be sold under the name of the Radio. It is manufactured by Wood and Co, Armoury Works, Ashton-under-Lyne. The special claim for it is that all tubes are in contact with the air, which tends to keep the gas cool and so reduce the noise of the explosion. It is also claimed that a perfect scavenging of the cylinder takes place at every exhaust stroke."

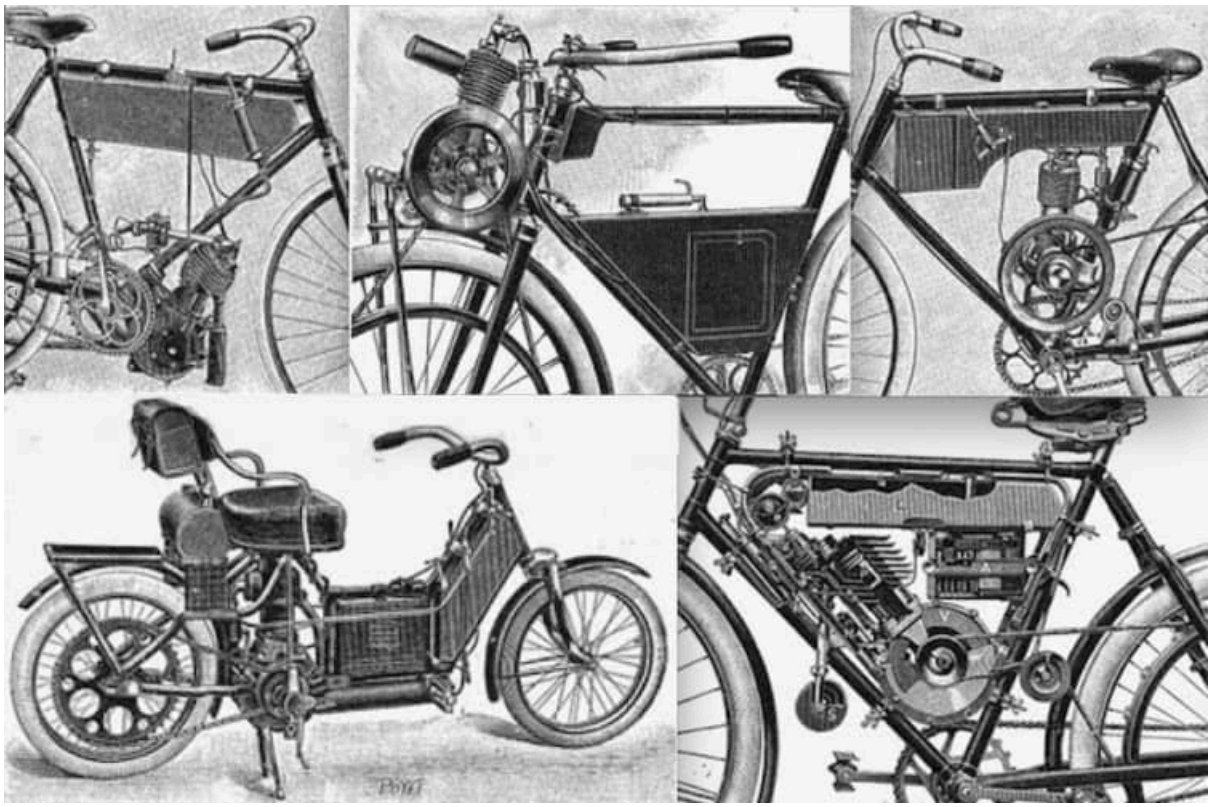
"THERE IS ABSOLUTELY no shadow of doubt that there is a far greater number of motor cycles being sold in England to-day than has ever previously been the case, and to all indications 1906 will be a record year. Almost every British maker has a full order sheet, and many agents for foreign built machines cannot obtain deliveries fast enough…The Motor Cycle will again oīer a prize to the reader who sends in the number nearest to the actual □ðgures which will be published after June 30th."

"AFTER A RECENT hill-climb a contributor made count of the various reasons assigned by some of the competitors for failing to do faster times. These panned out as follows: Gear too high (3),

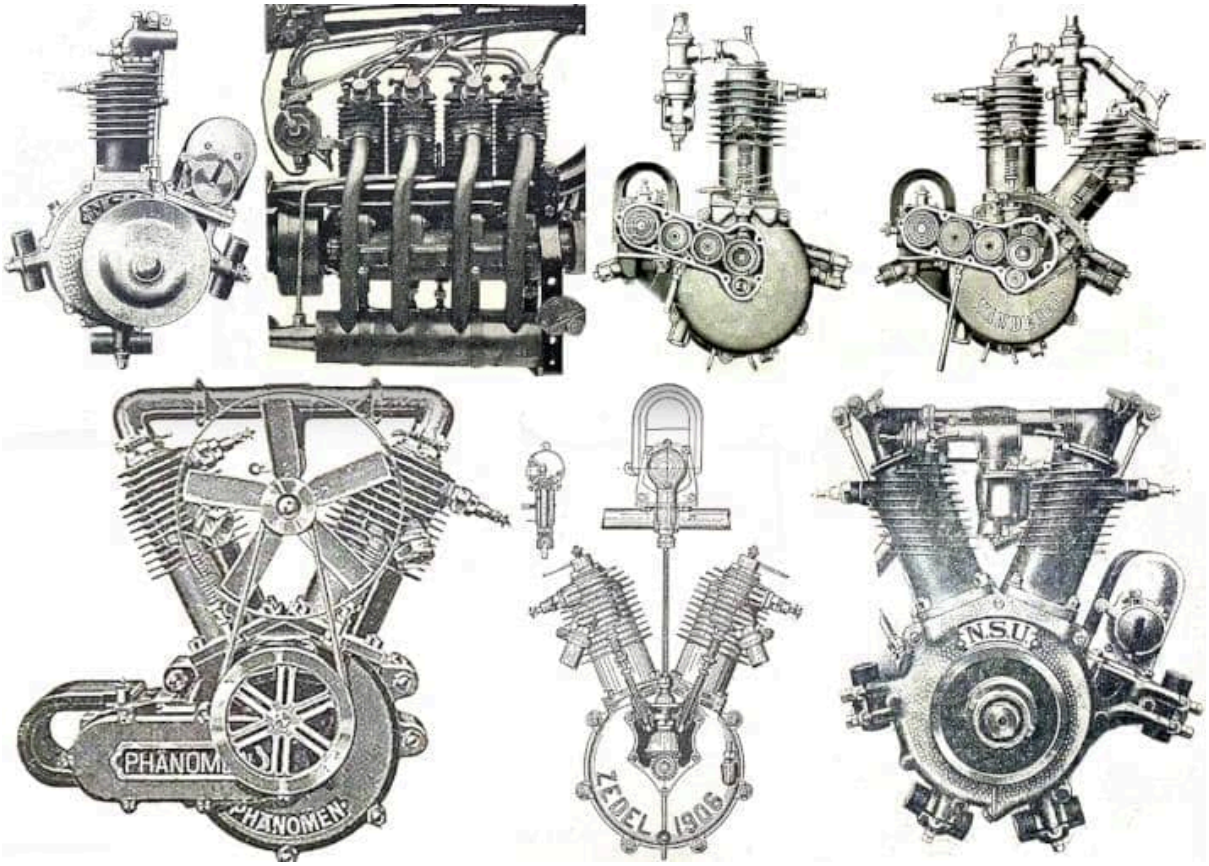
belt slipping (2), obstructed by spectators, etc (3), too-little petrol in tank (1), mis□ðring(1),poor start (1), wrong mixture (1), choked petrol pipe and jet (2)."

"MOTORCYCLISTSSHOULDnotethat a police trap has been started between Bodmin and Truro, about 10 miles from Truro, and another near Newport on the Cardiī Road. Readers should refer back for similar warnings. We only mention the latest advised, as the police are constantly moving their positions."

"AFTERVARIOUSTRIALSweareof the opinion that a properly designed spring fork is one of the most comfortable □ðttingsitis possible to have on a motor bicycle, and when once the □ðoating sensation produced by the same is known, spring forks will become quite general. Already the more up-to-date manufacturers have recognised their superiority, and □ðtthemasstandard."



Here's a selection of French lightweights (Left to right, from the top): Motobecane, Tractocyclette, KD, Autofauteuil, Motosacoche.



…andhere's a selection of the enginesthat were powering Continental motor cycles. Top row, L-R: NSUsingle, FN in-line four, Wanderer single and V-twin. Bottom row, L-R: Phanomen V-twin (□öttedwithwhat our colonial cousins describe as a 'parade fan'), Zedel V-twin, NSU V-twin.

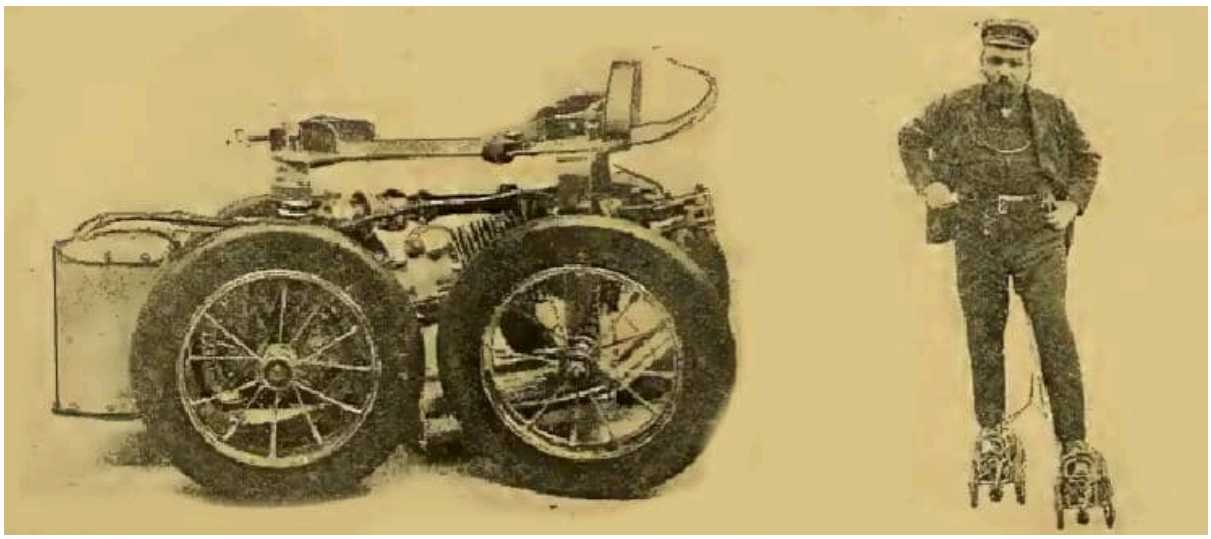
THEFIRSTACCLAND'SEnd-Johno' Groats trial attracted 73 starters. Only 13 managed the required 15mph average"and several of the machines that □önishedweremechanical wrecks". But of the 52 bikes that started the MCC's London-Edinburgh trial 34 □önishedwithinthe target 24 hours. Hillclimbs and other special sections were introduced to sort the men from the boys. J Van Hooydonc, trials secretary of the MCC, sponsored a prize for "the most meritorious performance in club competitions". Winner was Arthur Reynolds who, in the Schulte Cup competition, rode from London to Edinburgh and back in 48 hours. As TheMotor Cycle noted, "It is, indeed, a remarkable performance for man and machine to keepwithin a fraction of the set schedule of about eighteen miles an hour for nearly 800 miles of averageroads. Mr Reynolds is an amateur rider." Of the 12 solo riders who attempted the 800-mile run 11 completed it. By comparison, of the 15 passengermachines which set out for Edinburgh, only four arrived.

"The Schulte Challenge Cup, presented by Mr MJ Schulte to the MCC for competition in the run from London to Edinburgh and back."

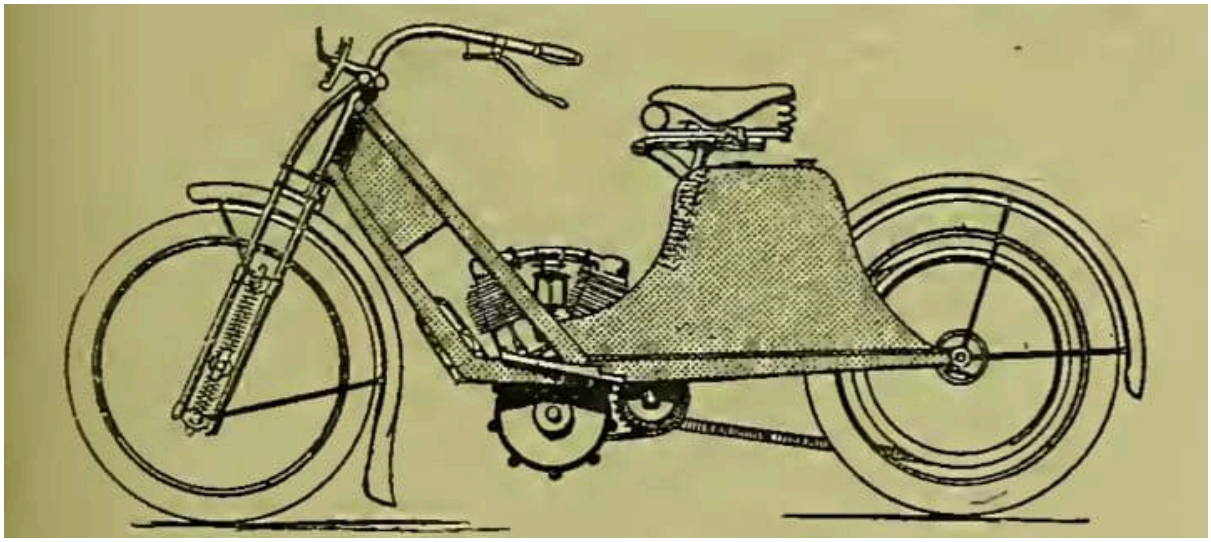
Arthur Reynold won a prize for the "most meritorious performance in club competitions".

WHILE RIDING THROUGH Pershore, Worcs a rider crashed when an urchin threw a stick into his bike's rear wheel. The local cops took his complaint seriously; the lad was hauled before the magistrates and bound over for 12 months in the sum of £6. The court "severely admonished" the parents.

IXION WROTE: "I QUITE expect that by 1909 I shall sit a mount that fears no hill, can do 45 miles per hour on the level, and run very smoothly, while not exceeding 130lb all on. In course of time the petrol turbine may come, and we shall obtain the same attractions on a mount sealing 75lb."



Steam punk extraordinaire: a clever Frenchman made petrol powered roller skates.



Messrs G Pilkington And H Sarginson won second prize in The Motor Cycle Improvement Competition with this design of a pressed-steel frame.

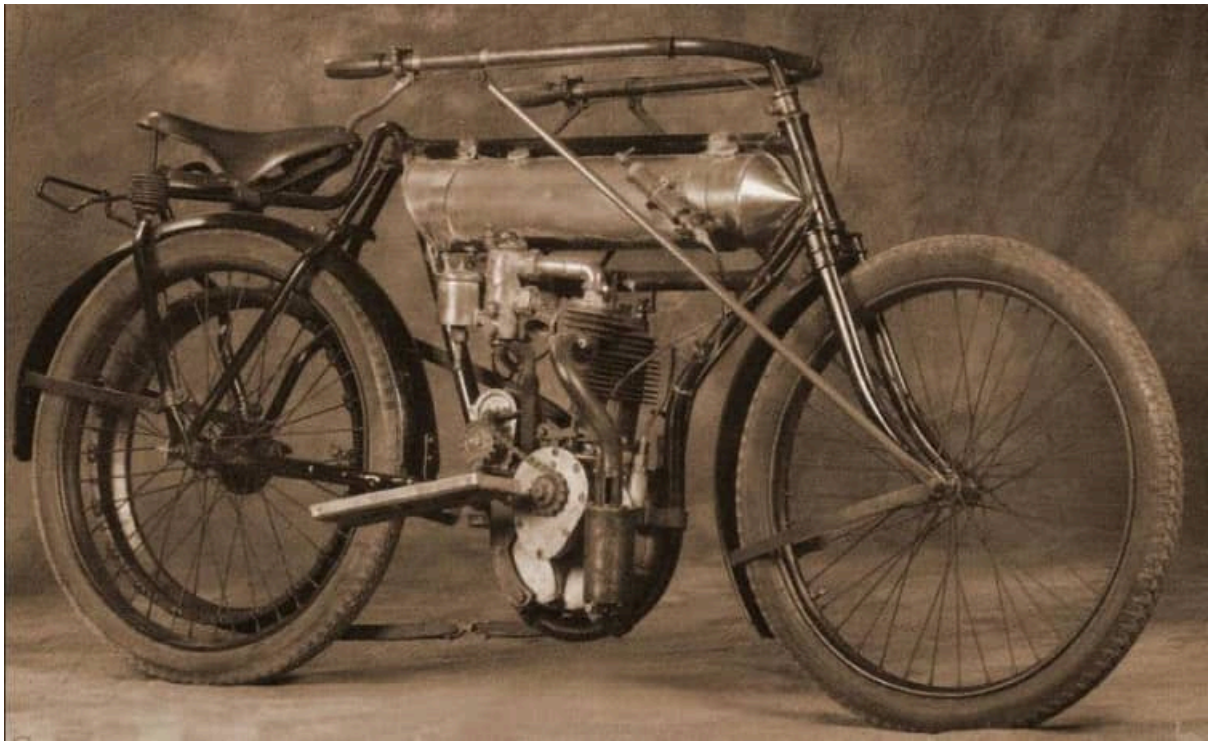
Here's a rare survivor: an Anzani pacer. Check out the size of that drive belt! (There are lots of pics of pacers at the beginning of the Melange picture gallery).

"IT WAS ONLY NATURAL that during the discussion on Mr JWG Brooker's excellent paper on Lubrication recently read before the Auto Cycle Club those present should frequently refer to the visible exhaust question. What struck us as being most curious was the fact that several members present were unable to distinguish between the two diīerent kinds of exhaust fumes, namely, the pungent black smoke caused not by lubricating oil but by bad carburation owing to the mixture being too strong, and the thick blue vapour due to excess of oil. It is interesting to

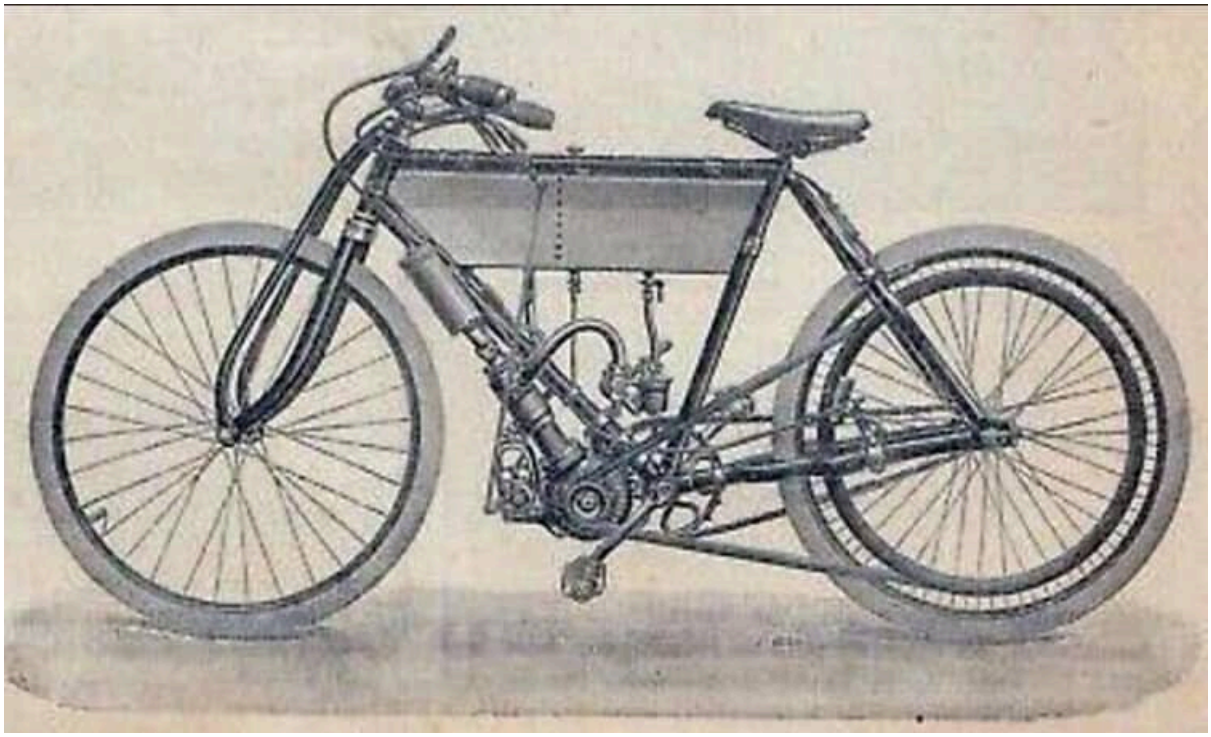
note that many engines will take almost unlimited quantities of oil without smoking, the reason for this being that any oil which gets past the piston is almost completely burnt up. If, however, the explosions cease from any cause the oil ceases to become thoroughly consumed, and blue smoke issues from the silencer."

"AT THE CLERKENWELL SESSIONS, on the 27th ult, JC Bird and Wm Hooper were indicted for having broken and entered the Neckarsulm Motor Cycle Co's premises and stolen two motor bicycles and accessories value £90. After the place had been entered prisoners called at the South Ealing Motor Cycle Co and oīered the machines for sale. The manager recognised the description of the missing property and communicated the circumstances to the prosecutors. The prisoners were conveyed with the property in a waggonette to Tottenham Court Road Police Station, and on the way Bird, who was a clever cycle repairer, pointed out to a prosecuting witness the defects he said there were in the recovered machines. Mr McConnell, KC, sentenced Bird to nine and Hooper to six months' imprisonment."

"MR RM STEVENSON informs us that having heard from a suīicient number of motor cyclists regarding the inauguration of a motor cycling club in his district, a meeting will be held at Buxton Villa, EA, Truro Road, Wood Green, N, to-morrow (Tuesday), at 8pm. All motor cyclists interested are invited to attend."



Another survivor, looking mean, moody and magni□ðcent: the Buchet.

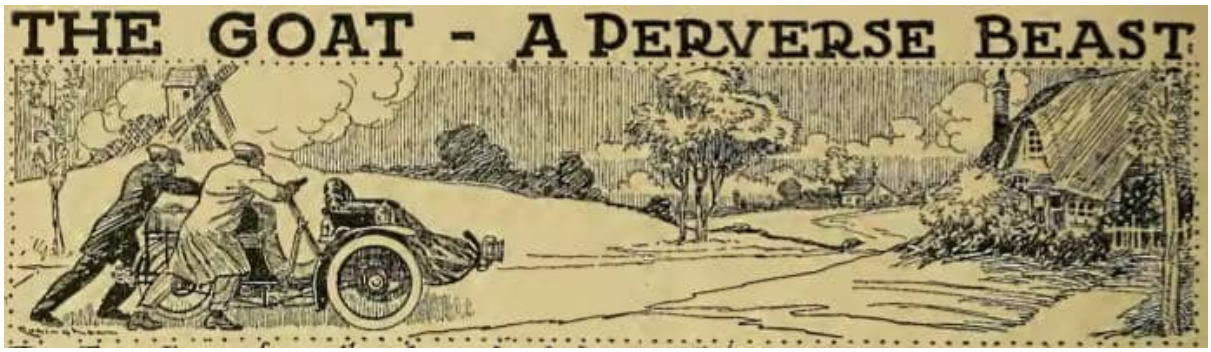


Herdtle-Bruneau dated back to 1902 and went out of business at the start of the Great War, but it was a pioneer of ohv engines.

"SPRING FRAMES ARE STILL few and far between, and it is a matter of surprise to us that more makers have not turned their atten- tion to springing both the front and the rear of a motor cycle. Spring frames will be standard some day, we feel sure, but for the present we must console ourselves with the excellent spring front forks now almost general."

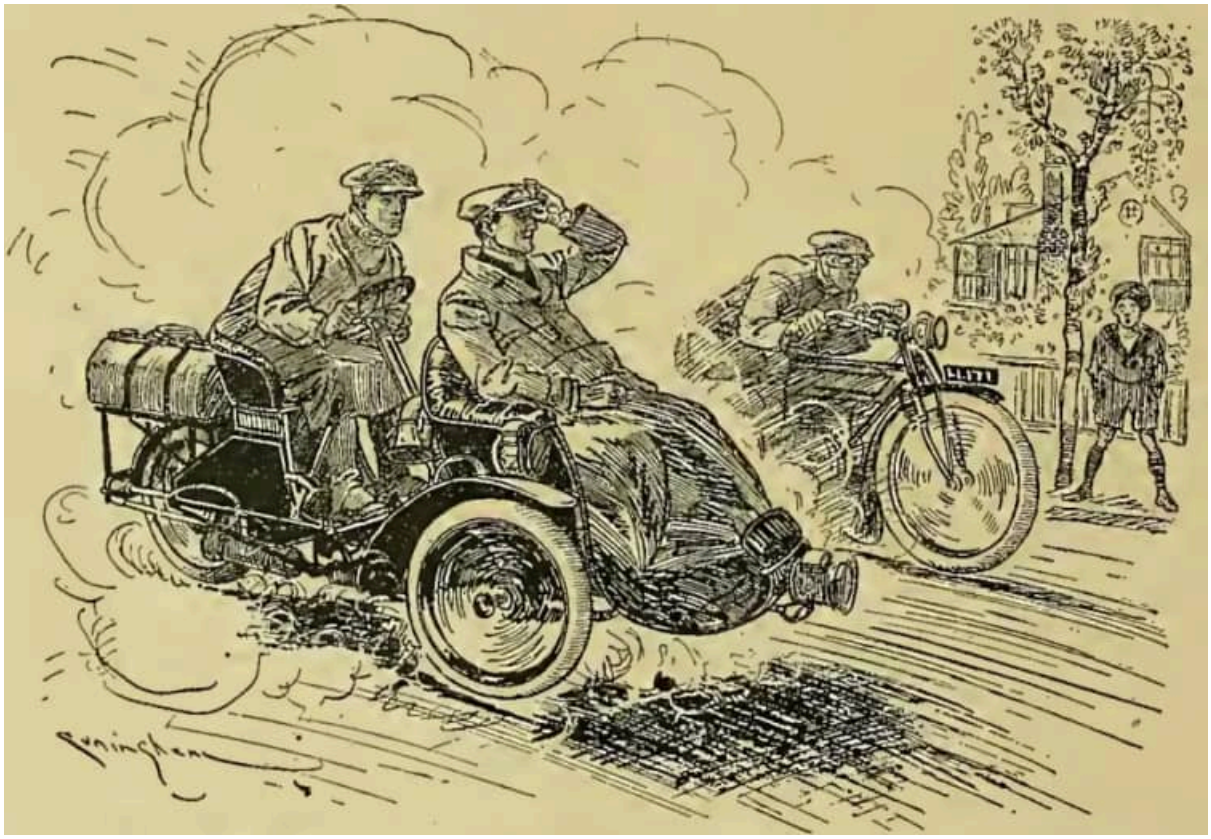
GERMANY ENDED THE YEAR with some 16,000 motorcycles, including 254 "for commercial purposes". UK registrations totalled 45,735.

A GOOD NUMBER OF RIDERS were on and about on Christmas Day when, according to a contemporary observer: "Riding conditions were perfect."



"THE GOAT… THIS ANIMAL WAS A 5HP TWIN TRICAR with two speeds, solid chain drive, bucket seat, wheel steering, and accumulator ignition. The owner—whom we will call 'G'—asked me to be the passenger from a place near Nottingham to Ledbury in Herefordshire. I, foolishly, jumped at the idea. I had never been in a tricar before, nor, I may say, have I been in one since. Our route was to be Nottingham, Ashby, Leicester, Rugby—this was afterwards changed to Coventry—Warwick, Stratford-on-Avon, Evesham, Tewkesbury, Ledbury. We started about ten o'clock in the morning on a Friday—ominous day—in July. Nothing worse than the throttle control coming

adrift happened in the □ðrstfewmiles,but half-way between Nottingham and Ashby we ran over a patch of unrolled stones, which brought the driving chain oī. It was a mild foretaste of things to come. We had hardly passed Ashby before we began to lose power until we crawled along on low gear, and had to get out and run up every slope. We arrived at our lunch stop at 3.30, and spent the rest of the afternoon trying to □ðndoutwhatwas wrong, and after tea we again took the road, but not before we had spent half an hour in trying to start. However,by the time we reached Leicester—a distance of □ðvemiles—theGoatgaveit up altogether, and we pushed it to the nearest garage,where we were greeted by a supercilious youth, who said there was nothing wrong, and injected paraīin, on which, strangeto say, the engine immediately started, and we got through the town before it once more gave it up. We pushed back to a near garageto □ðnd only the proprietor—and him nearly prostrate with fatigue, having just got back from a London-Edinburgh run, from which he had retired with a bad smash. I should like to say in parentheses that he was a sympathetic fellow, but wildly enthusiastic about a low-tension magmeto with which his machine was □ðtted.Ihaveoften wondered since how long that enthusiasm lasted. But to return to our muttons, this optimistic fellow promised to set the Goat on its somewhat tottering legs by eight the next morning, and so we sought an hotel. We, to tell the truth, rather doubted the ful□ðlmentofhis promise, and, sure enough, on arriving at nine o'clock next day we found the cylinders oī and one piston with a huge hole in its head—nowonder we had lost power. A neat patch was screwed on, and at two o'clock we once more started, and had far and away the best bit of our trip, for we completed the run to Coventry in two hours! Here we left the Goat in a garagefor a general tightening up while we replenished the inner man, having had nothing but twopennyworth of chocolate since breakfast. All went well till we reached Warwick, when, as we were leaving the town, the driving chain came oī; this performance was repeated eight times before we reached Stratford, where once more we sought a garage,and investigation showed that the whole engine had shifted an inch in the frame. We recti□ðedthiswith an iron bar and a hammer, and

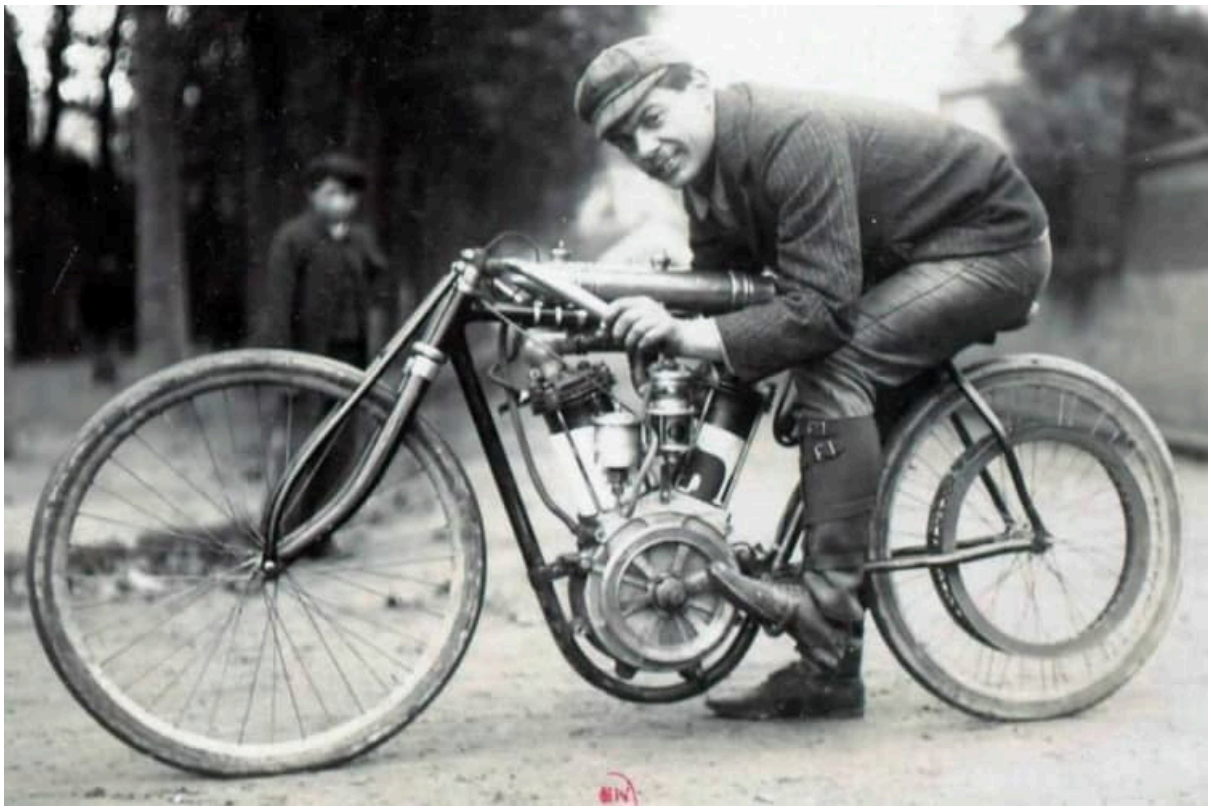


“Next morning, after a short overhaul, we started in □öneform,andgavea 2hp Minerva quite a race till we reached a slope, up which we had to push.”

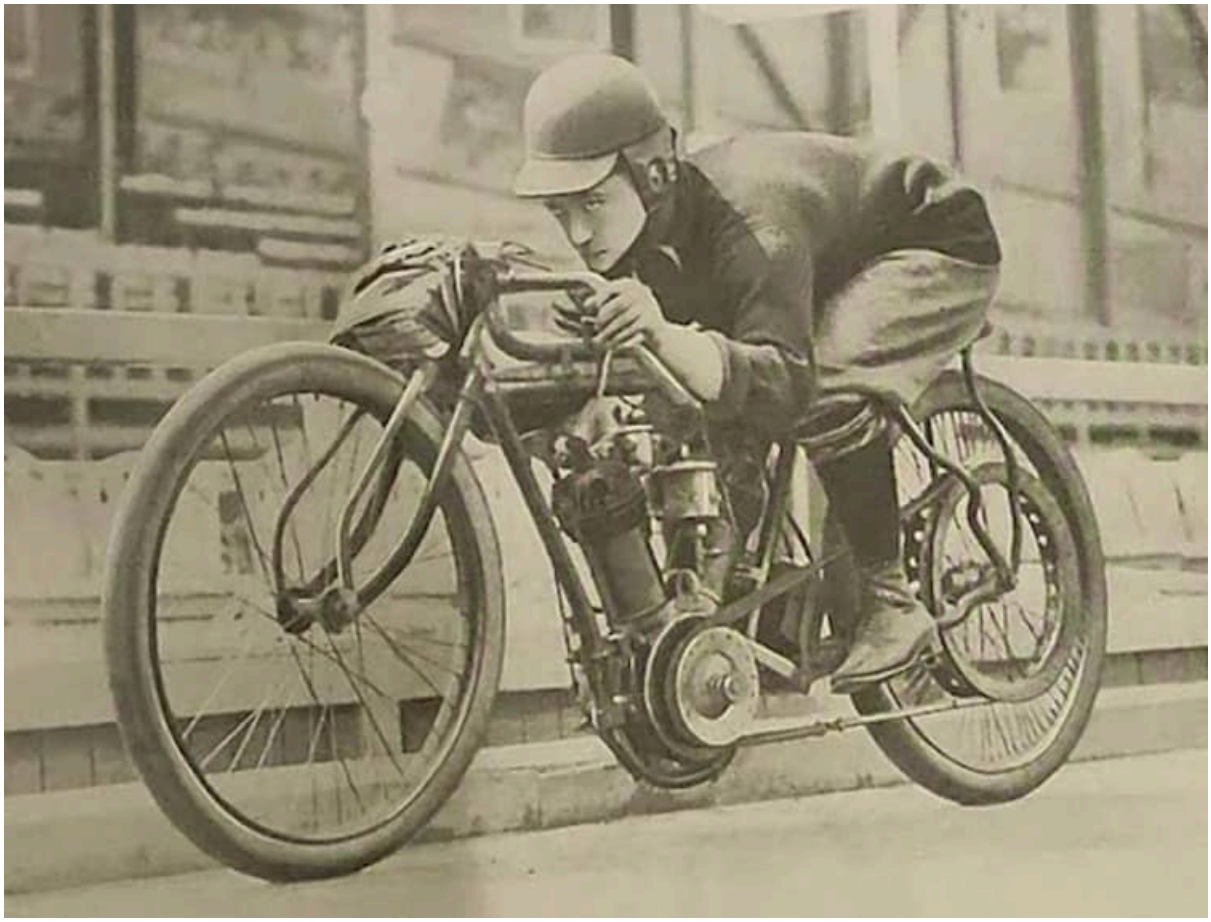
then discovered that the clutch operating pedal—an awful contraption about 2ft long with three right-angle bends—was cracked nearly through. We decided to dispense with it altogether, as the gearcould be changed without it quite easily, so it was strapped on behind, and about 10.30pm we left Stratford. All went well till we reached a village on the Avon, where there is a distinct slope down the main street. We arrived about eleven o’clock, and the public houses. were just emptying—the place has the reputation of liking its beer too well!—and so here the Goat took it into its perverse head to run away. I do not profess to understand how it happened, but the switch on the steering wheel refused to act, and I suppose everything else jammed, but anyway G could not stop it, and we charged gaily down the street, far faster than we had ever gone before, yelling at tipsy yokels. At the bottom of the slope G managed to reach the switch on the accumulator, and our one and only ‘blind’ ceased abruptly, and we decided to go no further that night. We therefore marched into the hotel demanding supper and beds. We could have the former, we were told, but the latter was out of the question as they were full up; however, they would try and get us beds in a cottage next door if we liked. We were too tired to go elsewhere, so we agreed on the assurance that the beds were ‘very nice’. Oh! that night. The beds may have been very nice, but their numerous inhabitants were very much the reverse. Let us discreetly draw a veil over the busy scene. Next morning, after a short overhaul, we started in □öneform, and gavea 2hp Minerva quite a race till we reached a slope, up which we had to push. A minute or two later I heard a horror-struck voice over my shoulder, ‘The oil pipe has broken,’ and so we went on in momentary expectation of a seizure until we reached Evesham, where, being Sunday, it took us two hours to □öndamanwho could do the necessary soldering. We then went without mishap as far as Tewkesbury, but as we were leaving this town we discovered that one of the two long screws which fastened the ‘make and break’ was missing. We screwed the other up—we had to repeat this perform- ance every mile or so—and proceeded gingerly. About ten

miles from our destination one of the exhaust pipe unions broke, and so we ended the journey sounding like a Maxim gun, the gases exhausting on to the only place where G could comfortably put his right foot. For these last ten miles, I, being well known in the district, remained discreetly goggled, in the hope of not being recognised! Hence many ribald jeers from G. We arrived at four o'clock in the afternoon on Sunday, having taken since ten on Friday morning to cover the 160 miles. I can only say that the Goat must have foreseen my ill-luck with motors, and was doing its level best to dissuade me from having anything more to do with them—anyway, that is the most charitable view of its performance. Poor old Goat! G accepted £10 for it, in part exchange for a new model, the very next day. I often think of it now when anything exceptionally exasperating happens—as, for instance, when, the other day, I broke my throttle wire at the foot of a steep hill in Cornwall, and had to push to the top to get a repair. No misfortune has ever deterred me: I am still an enthusiastic motor cyclist, and—'though I say it as shouldn't'—I am a nailer at diagnosing obscure troubles, even if I cannot cure them!"
Parson

VICTORY IN THE MCC TEAM TRIAL went to the MCC, which had won the cup the previous year in a walkover when no other clubs entered. This year they did it the hard way, beating all comers.



Giosuè Giuppone at The Semaine Automobile d'Ostende. He had good reason to look pleased with himself, having covered the □ðying kilometre sprint in 28.6sec, just 0.4sec behind the winner, Henri Cissac, who must have been even more pleased with himself, having set a world record at 127.66km/h (79.32mph). But that wasn't the end of the story. According to a contemporary report: "A 50kg machine, with a necessarily strong set of steel and tires, was able to □ðndanextra-lightengine capable of taking him, in a crazy race, to more than 120 km/h. But in Ostend, this record phenomenon has, twice, been pulverized. For he was not beaten by a □ðfthof a second, but by a second each time, Cissac reaching □ðrstat 127km/h (28sec), then Giuppone, three days later jumping to 27.2 seconds, the staggering speed, for such a tiny machine, of 132km/h (82mph), or 37 meters per second."

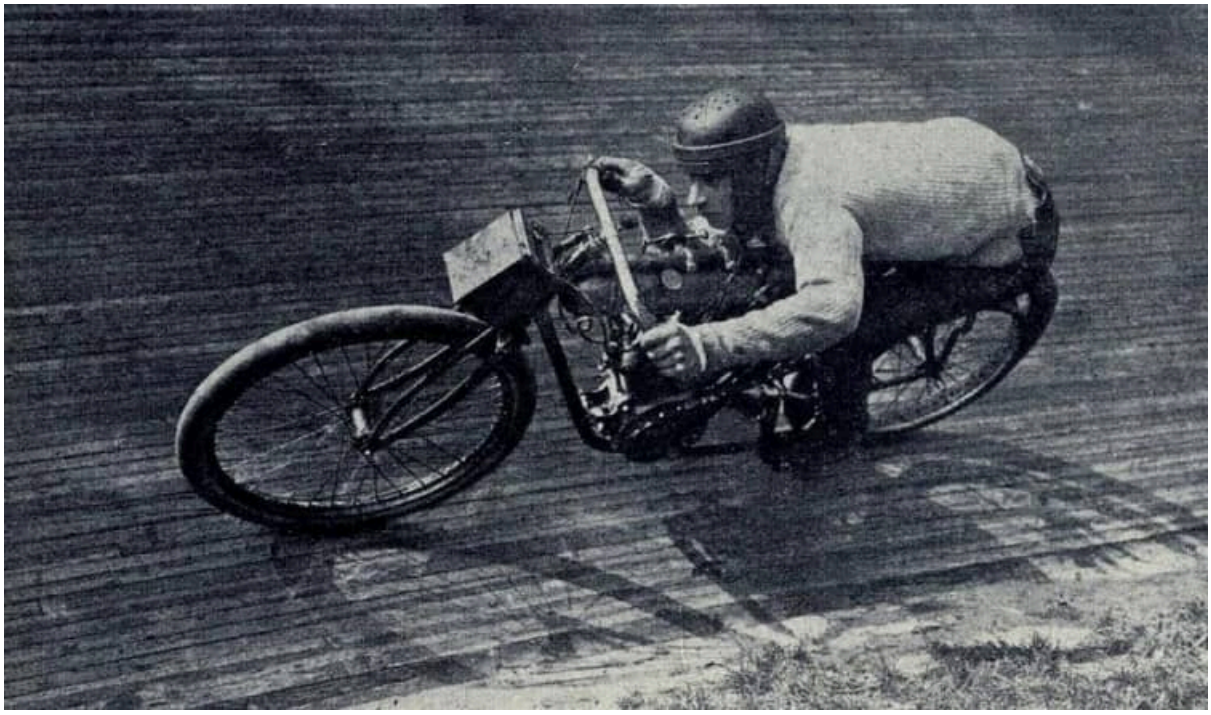


British riders were earning plaudits in France. A cover of La Vie au Grand Air was devoted to Freddie Barnes of Zenith fame. Under this portrait of “un noveau champion de la motorcyclette” La Vie reported: “Barnes, the English motor cycle champion, has just made his debut in France and immediately won over the crowd with his daring and courage. In his □ðrst race he met Giuponne at the Velodrome d’Hiver. Being completely ignorant of the track he was defeated, but after losing 200 metres at the start he came back to lose by only 60 metres in a 5km match.”

…andthis cover was too good to ignore,with its striking image of the magni□ðcentGordon Bennett trophy.

FROMLEPETITJOURNAL:“Overthe last few days, the Buīalo velodrome (in Paris) has been the scene of a dreadful accident. A match was scheduled between Pernette and Armand Contant. Their 12hp machines were capable of reaching 100kph. The300m Buīalo velodrome track is shaped like an ellipse with solid wooden barriers around the two 70% bends—spectators often lean against these barriers to get a better view, their bodies protruding good third of the way, their heads tilted forward. Themeeting was drawing to a close when Pernette and Contant lined up. Theriders began their second lap and the timekeeper had just noted that the □ðrst300mhad been covered in 12⅖sec, giving an averagespeed of 87kph, when Pernette’s belt jumped and locked his rear wheel. Contant was 10m behind, almost on top of Pernette,who was tumbling down the slope. To avoid him Contant had to swerve and was thrown towards the balustrade, on which he actually rode for more than 20m. A horrendous clamour erupted from all sides. The

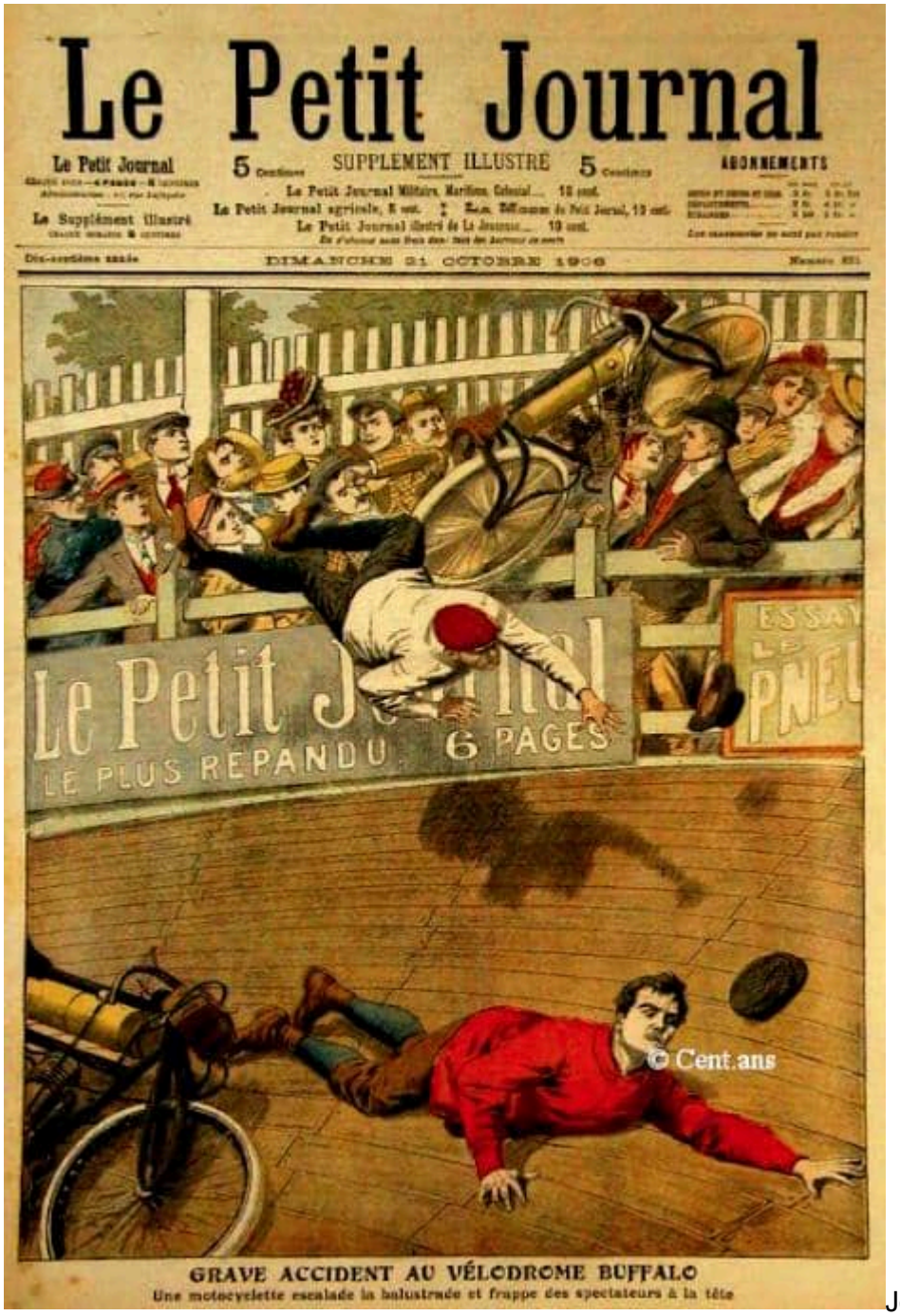
footboard of Contant's motor cycle hit a dozen spectators in the face as they leaned over the barrier watching Pernette's crash. The machine and driver fell back onto the track and tumbled to the ground. Contant was picked up without too much trouble, as was Pernette. But, alas, the same could not be said at the top of the bend. The unfortunate spectators who had been hit by Contant's machine were lying on the ground as the crowd rushed towards them, struggling to reach the injured. Stretchers were brought in and the bodies of the poor victims were laid on them. Two people were killed and ten injured in this strange and painful accident."



This is Contant, pictured on the Buīalo velodrome…

FIFTY MILES AN HOUR ON A VERTICAL SURFACE: THE ACCIDENT ON THE VÉLODROME BUFFALO, IN PARIS, RECONSTITUTED BY PHOTOGRAPHS.

"Fifty miles an hour on a vertical surface: Theaccident on the Velodrome Buīalo reconstituted by photographs."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Numéro 851
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GRAVE ACCIDENT AU VÉLODROME BUFFALO
Une motocyclette escalade la balustrade et frappe des spectateurs à la tête
Journalism in the raw—when Le Petit Journal commissioned this graphic illustration it got its money worth by ensuring the artist included an advert for the magazine.

"TIME, 4.30pm, MONDAY, 30th ULT. Telephone rings. 'Hullo!' 'Is that you, Ebblewhite? I'm Barnes; am going to have a try for the hour.' 'Is your machine ready?' 'Yes, going well.' 'Have you got your permit from Straight?' 'Yes.' 'What time are you going?' 'Six o'clock sharp.' 'All right; will be there.' At 6pm, on arriving at Canning Town track, not a soul was to be seen, but, guided by snatches of comic songs to one of the small dressing-rooms, on opening the door and getting used to the atmosphere of smoke, I discover Barnes, with his two mechanics, □ðttinganewpair of front forks of heavier gauge, as those taken oī were found to whip on the banking. The three men were working against time, and it appeared to my unaccustomed ears that a sort of verbal contest was in progress between them, in which they were following, the example of Kipling's

□ðrstlieutenant,who is recorded to have said 'precisely what occurred to him'. His crew were engaged in making a coaling record, but it is questionable whether the oīicer suīered more inconvenience than the trio who slaved feverishly in an apartment six feet square. At 7pm the machine was declared ready, and on a trial lap showing on the watch to be 20⅕sec, Barnes was about to start when the front wheel bearing was discovered to be loose, owing to the hurried change of forks. More compliments passed whilst adjustments were made, and at 7.20pm Barnes started to try and improve on CR Collier's one hour record of 54 miles 523 yards, made on Julyl2th, 1905. Riding to a table of 1min 5sec to a mile, the recent records (one mile to twenty-seven miles, made by Collier on Easter Monday, in his match with Barnes) were ignored. By the way, Collier's recent records will require a lot of beating, as several of the miles were reeled oī in 60⅕sec…GA Barnes'srecords are from 28 miles to one hour. All previous records are held by CR Collier. Barnes kept a little under his schedule, the mile being between 1min 4sec and 1min 5sec, and, keeping up this rate, he was inside record by 33sec at 28 miles, and, continuing to improve on each succeeding mile to 55 miles, rode 54 miles 1,620 yards in the hour…inthe last 20 minutes the pace generally slowed, this being caused by darkness, as the ride did not □ðnishuntil8.20,and in the last 15 miles the supply of lubricating oil ran out. As an exhibition of British grit and devilment, motoring in the darkness at 50 odd an hour on an unilluminated track. this portion of the ride has a similarity to that of Harry Martin's, when he beat the 100-mile record on October 28th, 1904, at the same track, although Barnes's pace was much faster. It was a weird and uncanny sight to see the □ðamesfromthetwo exhausts circling round and round in the dark, and the group of spectators hanging over the railings, silent and fascinated at the sight, only □ðndingtheirtongues to shout when the ride □ðnished.Themachine ridden was □ðttedwithatwo-cylinder Alcyon engine, 85x90mm, and it is worthy of note that ordinary 2¼inroadster Dunlop motor tyres were used.
AV Ebblewhite."

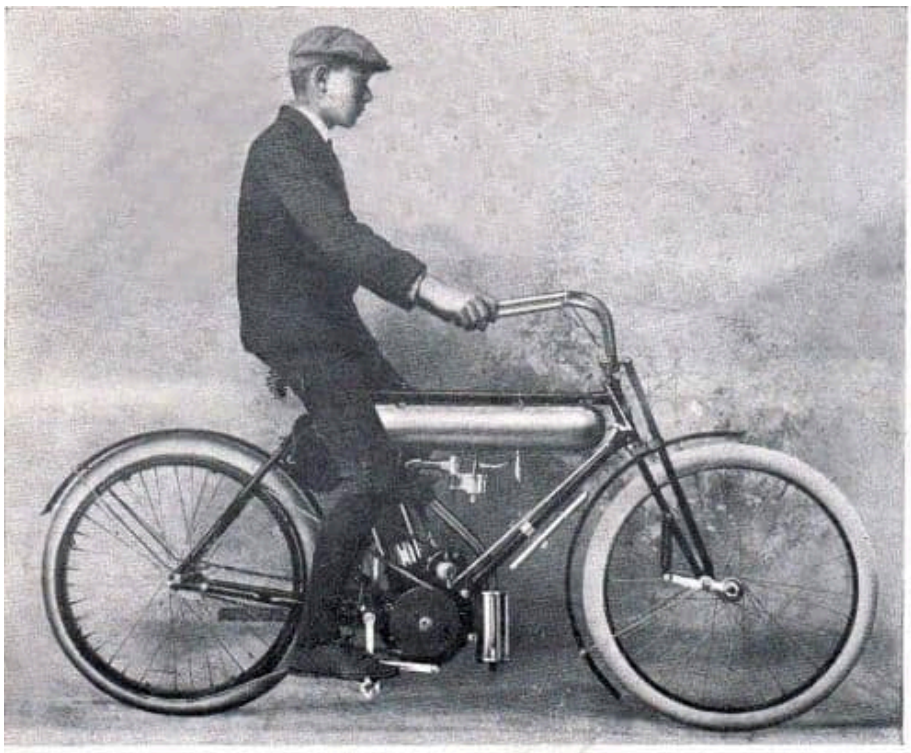
"Geo A Barnes and the Twin-cylinder Alcyon Machine he used to regain the One Hour Record."

"MANY THANKSFORtheinsertion of my loss of a pulley and umbrella cape at Rickmansworth in your last issue. I heard on Saturday, the 28th ult, from a resident that the pulley had been given to the local cycle agent, but am still trying to trace the cape. However, a very quick return of

news, I think.
TH Bristow."

"WHAT IS WANTED by numbers of riders is not so much speed as perfect control of machine and power without pace. This points to water-cooling and two or more speeds, with free engine for starting. The diïiculty, of course, is to get an internal combustion engine to travel slowly as well as fast, as it develops its power only by running fast, and is incapable of going very slow without mechanical help. To be able to run slowly in traïic and to go with certainty up any bill (slowly, so as to get d corners) is what ought to be aimed at. All else is detail only, and could be got over.
EP Williams."

"RE PARAGRAPH IN your issue of April 14th on Newcastle clubs, the Newcastle & DMCC has now 47 riding members, and is in process of aïiliation to the Auto Cycle Club, Motor Union, and to the North-east Automobile Association; subscription 5s, plus 2s 6d for aïiliation purposes. All riders of motor cycles and tricars admitted. Regarding amalgamation with the Newcastle Motor Club, although we wish to work in harmony with all motor clubs amalgamation is impossible, as the latter club admits cars and their owners to its fold, and it also indulges in club runs, both reasons debarring us from all hopes of amalgamation.
SW Carty, Honorary Secretary."



Simplest in operation, easiest riding and most durable motor cycle in the world.

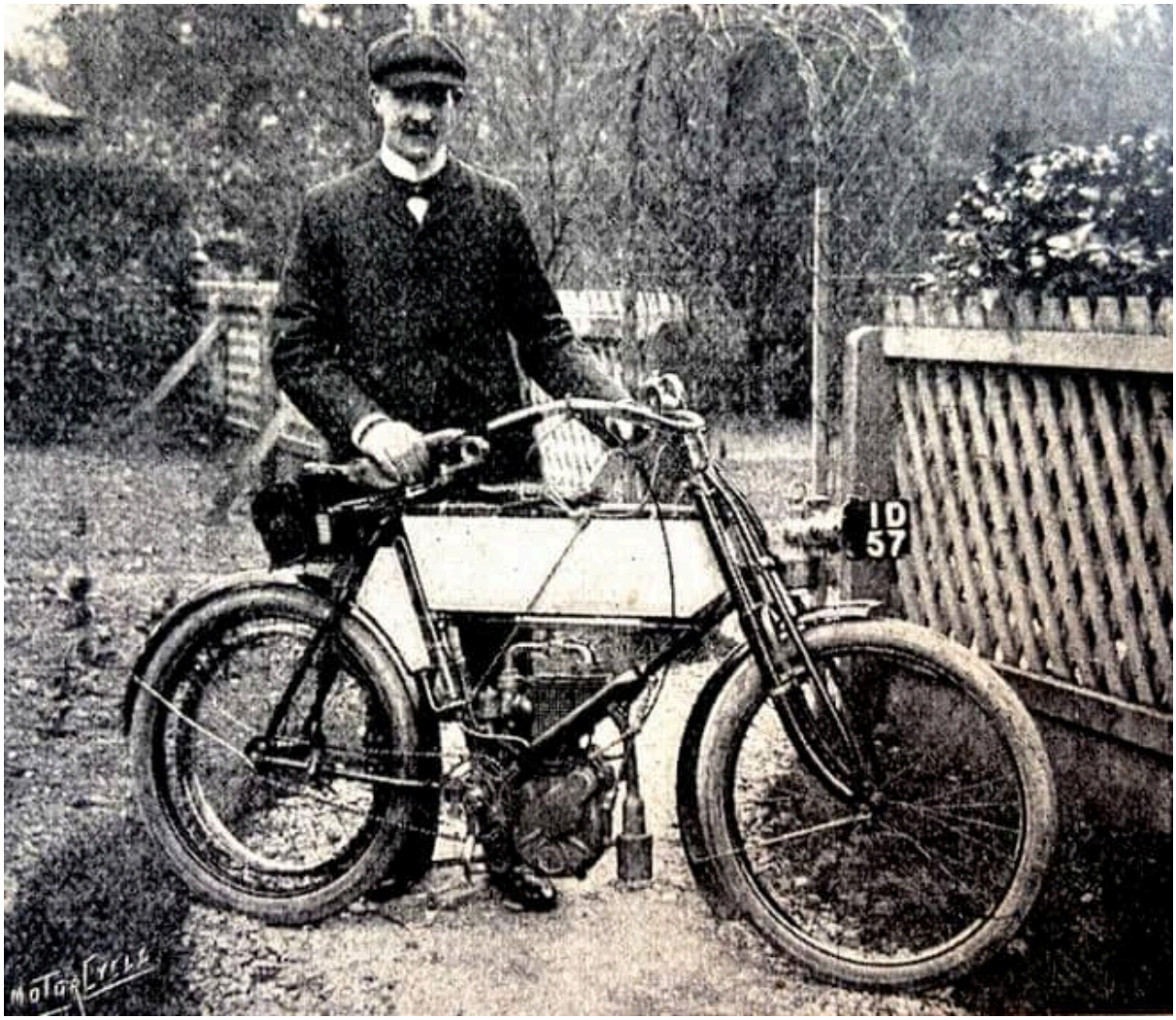
C. Walter Metz on his Marsh-Metz Motor Cycle, who, on Labor Day, in the N. A. M. Reliability Run on the road, covered 300 miles in 14 hours 32 minutes, which is the world's record.

From the US magazine Bicycle World and Motorcycle Review.

"THE PHOTOGRAPH I enclose may interest your readers to some extent, as it represents what I would term an Anglicised FN. The machine is last year's standard 2¾hp, 2¼in tyres, with non-slipping tread on each cover, thus aïording security against side-slip and punctures, British saddle, toolbag, stand, and back-pedalling brake. The original crank bracket axle, made in two parts and uniting midway, proving troublesome by coming loose frequently, was discarded in

favour of a solid axle with keyed on cranks. The original back wheel hub, for somewhat similar reasons, was replaced by a Chater-Lea □ðtting, the wheel being rebuilt to suit. With these alterations and improvements, the bicycle proper is now about as perfect and reliable as it is possible to have it, and should last for years. During the winter the tanks were □ðnished aluminium, the frame picked out with light blue lines, thus enhancing the general appearance very considerably. The small roll held in a clip on top tube contains a few useful tools for doing minor adjustments, which saves opening up the larger tool holder. The machine has been used for town work principally, and occasional touring, but never at any time, far or near, has there been the slightest trouble or stoppage arising from engine, carburetter, or electrical equipment. I am getting one of this year's single-cylinder patterns, with magneto and spring forks, retaining the present machine as a reserve. In duplicating, so to speak, I expect to be able to transfer to the new machine many of the superior □ðttings soī the old one, such as wheels and tyres, saddle, stand, etc.

RG Lindsay."



"I read in a recent issue of The Motor Cycle that I had been appointed a riding oīicer of a new motor club for the Newcastle district, and that a run was □ðxed for Good Friday. As I have resigned oīices before for similar reasons, I shall be glad of your courtesy to explain. I applied for particulars when this club was formed, and was elected an oīicial without being consulted. As soon as I was informed, I promptly refused to serve, and I have to thank one of your readers for drawing my attention to the notice in your columns, enquiring how I justi□ðed such an oīice in

view of my clerical profession.
(Rev) BH Davies."
[***…or, as generations of enthusiasts knew him, Ixion—Ed.***]

"YOUR CONTRIBUTOR 'LHGL', in his recent article on cylinder-cooling, dismisses the fan in an almost contemptuous manner. However, he quali□ðes 'fan' with the word 'ordinary', and I am inclined to think that he has never used a properly-designed fan of the enclosed type with a good delivery nozzle playing on the combustion head. Last year I had such a fan, and found it most useful in hill-climbing and practically indispensable for forecar work. It is not too much to say that with reducing gears either fan-cooling or water-cooling is essential. Professor Callendar has recommended a well-designed fan as a very useful adjunct, and states that it takes a mere fraction of a horse-power to drive. I am quoting this from memory, as I have mislaid the magazine in which I read it. From my experience with fan-cooling, I am so convinced of its advantages that I am thinking of having a twin-cylinder engine □ðttedonasmall car, cooled either by two fans or a double-blast fan, in the hope that the water tank, pipes, and radiators may be dispensed with. The net saving in weight-would be considerable, and the saving in trouble very appreciable.
EHF."

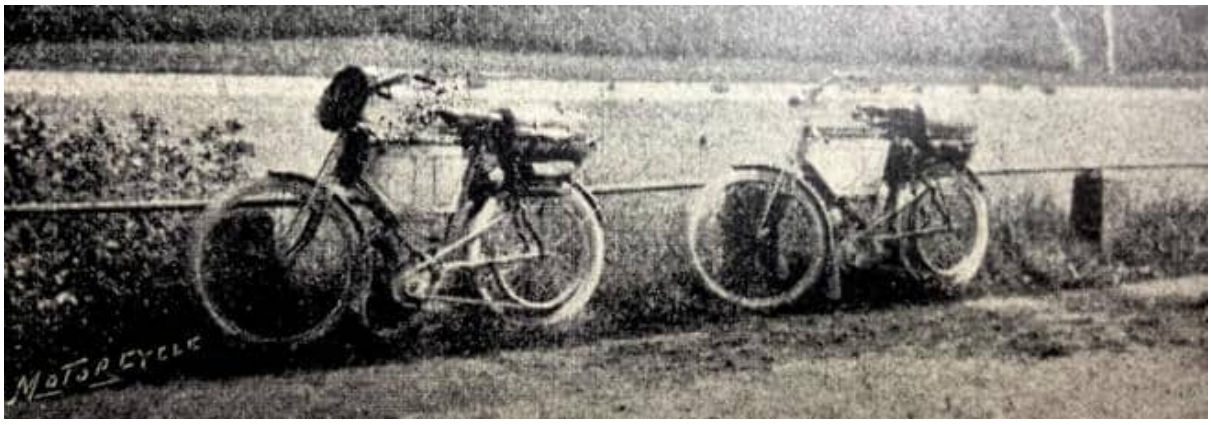
"SUMMARY OF OTHER CORRESPONDENCE. **HParkinson** writes: 'Would any Preston or Lancaster rider describe the best route to Blackpool from the main road between Lancaster and Preston suitable for a sidecar? Last year I went via Broughton (three miles from Preston), but found the road very bad…**CRLight** wishes to thank the owner of car W409, who so kindly assisted him on the 14th ult, three miles from Wetherby…**CWCroft** reports very generous treatment on the part of Mr Sheen, of Greenwich, who opened his shop on Sunday afternoon to supply a spare accumulator…Will the gentleman who lent an accumulator at the Georgeand Dragon Hotel, Westerham, on the 21st ult, communicate with **SW Waldell**, Cumnor, 38, Kenilworth Avenue, Wimbledon, SW?…**MrWells** writes correcting our report of the Herts Automobile Club hill-climb, where we made a statement that the performances of the two Vindec machines did not count, as under ACC rules no man may ride two machines in one event. No one man rode two machines in this event. While there were three Vindec Specials entered with a diīerent rider for each machine, only two competed—one ridden by Mr JS Harwood and the other by Mr Wells. We make this correction with pleasure…EXPERIENCES WANTED: '**MRCS** 'would like to have readers' personal experiences with the Norman two-speed gear, more particularly those who have had the gear in use for some time…**BHorne** will be glad for an opinion from our readers of the Osborne free engine pulley (not the four-speed gear) for use on a 3½hp machine with a ⅞ belt."

Motor cycles had evolved in a handful of years from novelties ĭt only for local jaunts to machines capable, in the right hands, of spanning continents. Here's an excerpt from one such expedition.

By Rev AJ McKinney

"…The direct road between St Germain and Paris is in a most shocking condition, which must be experienced to be believed. My feet were jerked oī the pedals, and my machine slithered from one side of the road to the other, and I had great diīiculty in avoiding several falls. I then returned to Paris, and spent the rest of the day on 'buses and in walking the streets looking for my friend. The next two days I was unwell, and unable to eat anything. After two days' agony, during which I daren't even look at the motor, I improved gradually, and at last I was well enough again to see about having my accumulators recharged, which I did after spending a whole morning over the business, and being □ðnally referred to the Minerva Co's premises in the Rue de la Grande Armée. Strangely enough, it was through this that I found B, for he, too, had left his machine there. He told me he had had to stop again two miles further from where I left him, and that while he was mending the wire I thundered past. More postcards from B, and then we set oī at 4am, determined to do a really long day's run, but though we rode till 9pm we only did 40 miles—just one hour's run on these machines. B had bought a new tyre cover for this tour, which was of the most □ðimsy description, for it did nothing but puncture all the time, till all sense of moral rectitude had vanished from our minds. Fifteen hours spent under a blazing sun, dragging oī a stiī outer cover and using pints of solution and yards of rubber, till our □ðngers were so sore that they would not bend, are enough to ruin the temper of a saint. That awful tyre almost spoiled our trip, for till we □ðnally threw it to a pig and bought a French one we knew nothing but vexation. How we drank bottle after bottle of delicious light wine at a wonderfully cheap price (7½d a large bottle), how the perspiration rolled oī us, and what a treat to turn into bed that night! Owing to these punctures, we nearly got into serious trouble next day, for we had taken no lamps with us, not meaning to ride on strange roads in the dark, but through B's tyre faithfully maintaining its character we entered Joigny half an hour after nightfall, and dashed unknowingly into a group of 30 gendarmes and soldiers, who seized us and our machines before we knew what was happening. The chief was in a tremendous rage, and gave orders to lock us up, and things began to look a bit serious. I conveniently forgot all the French I knew, and ejaculated 'Punctures,' and pointed to the tyre, and said we were going to the Hotel de la Poste. After about 15 minutes of this, he began to laugh, and the situation was saved, and we thankfully turned into the hotel and had a square meal. The next day we reached Dijon with

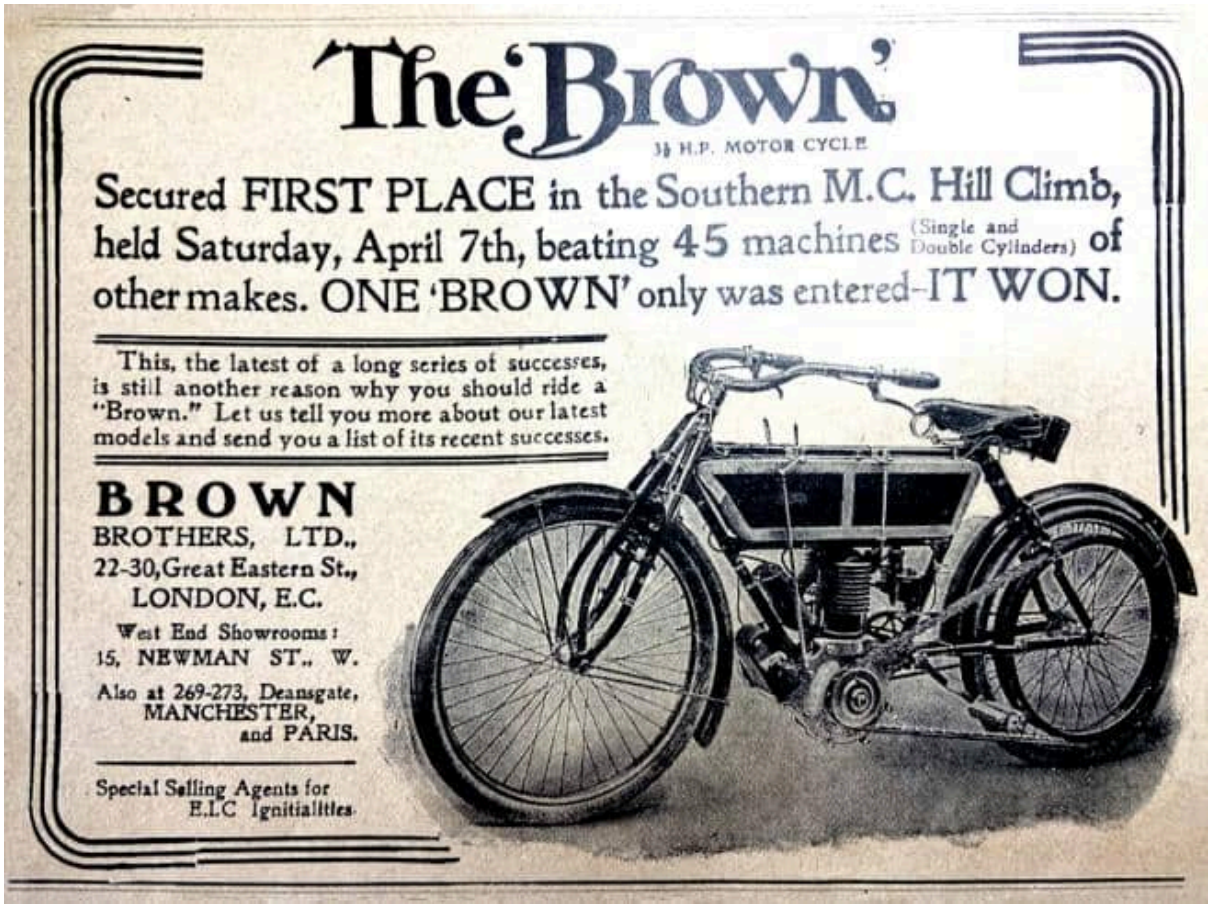
nothing more exciting than punctures, though the road was excellent, being one of the best Routes Nationales. On the way we saw a collision at a cross road between a FN motor cycle and a big car carrying 10 people. Having rendered all the assistance we could, we mounted, and had hardly started up the village high street when B's machine, which was leading, startled two horses. The animals began to plunge and rear, and one put his hind leg through the window of a house, while the other knocked down an old woman who stood right in the way and would not move. In an instant the village was one frenzied mass of excited people, who seemed to think that two motor accidents on the same day were too much. Owing to the peculiarly hard quality of the stones in this district, we suddenly recollected a pressing engagement a long way oī, and we did not wish to be late for the appointment! In the next town we stopped at, we could not get supplied with food because we had nothing but English gold, which for a wonder they would not look at, so we had to push on, hungry and angry, till we reached Dijon. This is a □ðnebigtown, known chie□ðyasbeingan important junction on the PLM Railway…We had an enforced stay here while waiting for our accumulators to be charged, which took them two days, and then we were oī again.



Owing to all these delays, our original idea of making for Venice had to be abandoned, and instead we went to Macon, and then through the Jura to Geneva. What struck us most in this part of the tour was the excellent way in which the TCF has indicated the nature of the roads by very clear notice-boards, which, in addition to telling us of gates, railways, ditches, etc, even gave the number of turns and the angle of descent on a hill. Of Geneva much might be said, only it would be super□ðuous. as so many have been there. It was a welcome change to us to sail over the calm expanse of that grand lake on one of the express steamers, and to enjoy the rapidly-changing views in cool, fresh air, after our long and dusty kilometres of French high roads…B, directly he got on board, seized the most comfortable chair on deck and put his feet on another, and fell fast asleep, with a monster box of cigarettes by him, which I enjoyed immensely, while to this day he deplores the want of honesty on the part of some individual on board. Having been refreshed by the sail, after more post-cards, we set out next morning for Lausanne, via Nyon and Morges. This was most delightful; the scenery changed so rapidly as we followed the winding road, sometimes looking down on the blue waters of the lake, and at others receiving a magni□ðcent view cf the far-oī mountains on the Italian side…The gradients were not severe, though at times there were unavoidable steep bits to be negotiated. The Swiss do not seem very fond of motors, for though there was a fair number of them in the towns they were chie□ðy motor bicycles of about 2hp, which seldom went farther a□ðeld; but, then, the oīicial speed limits are ridiculous, eight, □ðve, and sometimes three kilometres an hour being the prescribed pace through some village where dwells some swelling 'burgomeister'. After a night in hilly Lausanne, we had a varied and undulating road to Vallorbes, our next halting-place. We kept going up and

up until we reached a height of either 7.000 or 9.000 feet—I forget which. Here the air was most exhilarating, and the eīect of the wide expanse of grand scenery and the glorious woods in the valley below was magni□ðcent in the extreme. We began to feel very hungry, so rushed down to the sweet little village in the valley below, where we found a typical Swiss hotel, which was clean and moderate in its demands. I think that this part of our tour did us the most good, for the air was so pure and bracing and the change so bene□ðcial that we revelled in climbing the mountains and basking in the sunlight, feeling at last what our French friends call the joie de vivre…"

To conclude this review of 1906, some contemporary adverts…


The 'Brown'
3½ H.P. MOTOR CYCLE
Secured FIRST PLACE in the Southern M.C. Hill Climb, held Saturday, April 7th, beating 45 machines (Single and Double Cylinders) of other makes. ONE 'BROWN' only was entered—IT WON.
This, the latest of a long series of successes, is still another reason why you should ride a "Brown." Let us tell you more about our latest models and send you a list of its recent successes.
BROWN
BROTHERS, LTD.,
22-30, Great Eastern St.,
LONDON, E.C.
West End Showrooms:
15, NEWMAN ST., W.
Also at 269-273, Deansgate,
MANCHESTER,
and PARIS.
Special Selling Agents for
E.I.C Ignitialltles.

THE GREATEST TRIBUTE

ever paid to the merits of any Tricar has been awarded to the

C·I·E

by the Official Handicapper of the Auto Cycle Club, who, at the Essex Motor Club's Open Hill-climb on 28th April, 1906, at Lippett's Hill, Essex, placed the C.I.E. as follows—

4 h.p. C.I.E. (one cyl. 80 by 85)	***5 secs. start.***
10 h.p. Lagonda (two cyl. 90 by 96	***8 secs. start.***
9 h.p. Singer (two cyl. 85 by 89)	***15 secs. start.***
Other Machines	***up to 20 secs. start.***

Notwithstanding this flattering method of handicapping, the C.I.E. Tricar obtained Third Place.

Climbs
Inclines
Easily.

Comfort.
Idealism.
Efficiency.

5 h.p. C.I.E. with Coach Built Body.

The C.I.E. has been successful in obtaining a place in

EVERY OPEN HILL-CLIMB DURING 1906.

Lewisham A.C., River Hill	***C.I.E. Gold Medal.***
Southern M.C., Coast Hill	***C.I.E. First.***
Herts. A.C., Maple Hill	***C.I.E. Second.***

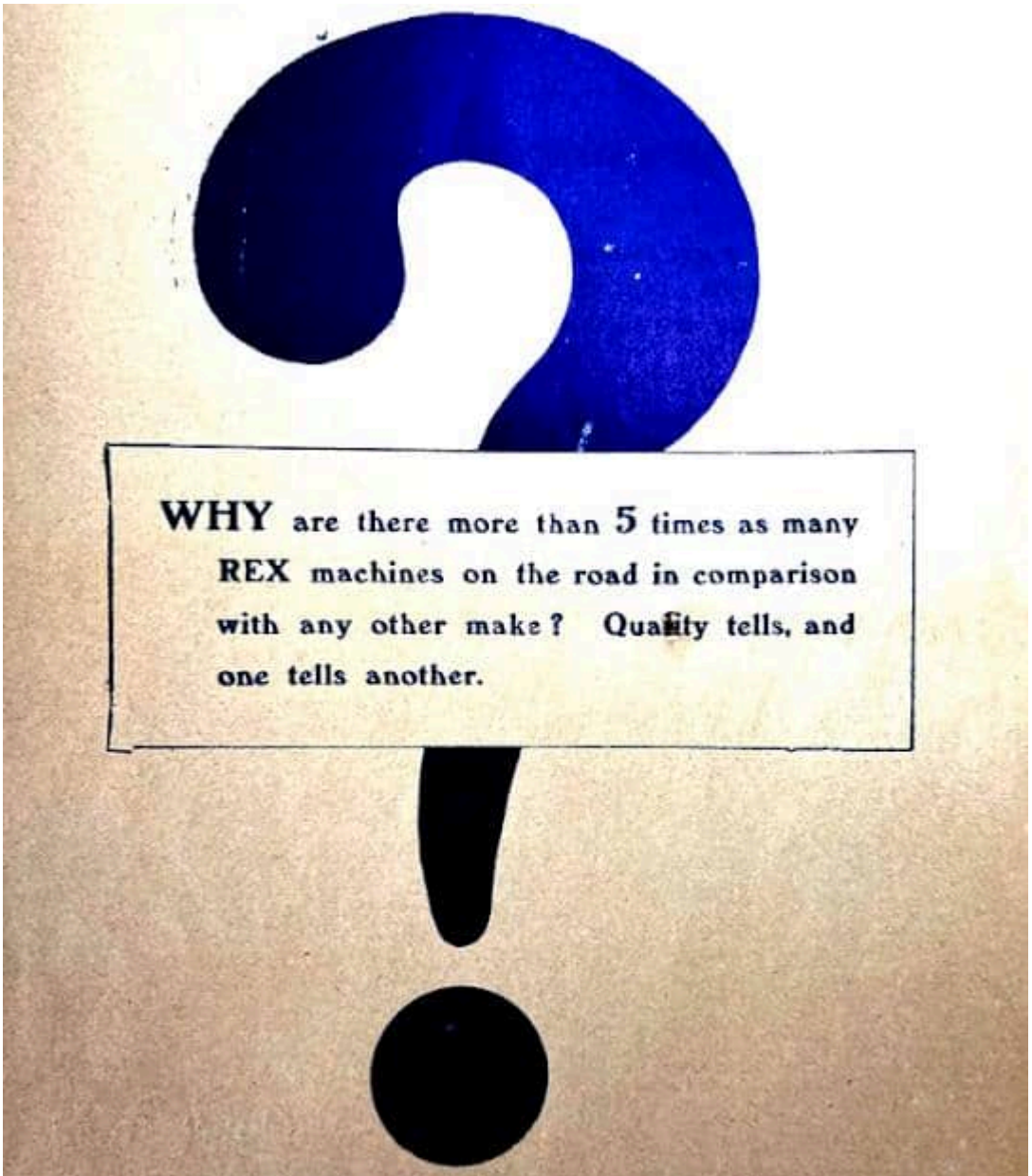
Essex M.C., Lippett's Hill, although conceding a start to all other competitors except one the ***C.I.E.*** obtained ***Third Place.***

The Motor Cycle says—"The machine (C.I.E. 4 h.p. Tricar) went up an exceedingly steep hill (the gradient of which is stated to be 1 in 6 with an extremely rough surface) in excellent style."

The Magneto Motor Manufacturing Co.,

363, HIGH STREET, LEWISHAM, LONDON, S.E.

WORKS 112 PRINCES STREET, DEPTFORD.



WHY are there more than 5 times as many REX machines on the road in comparison with any other make? Quality tells, and one tells another.

Booklet from . .

REX MOTOR MFG. CO., Ld., COVENTRY.

World's largest Motor Cycle Makers.

London Agency: Store Street, Tottenham Court Road.

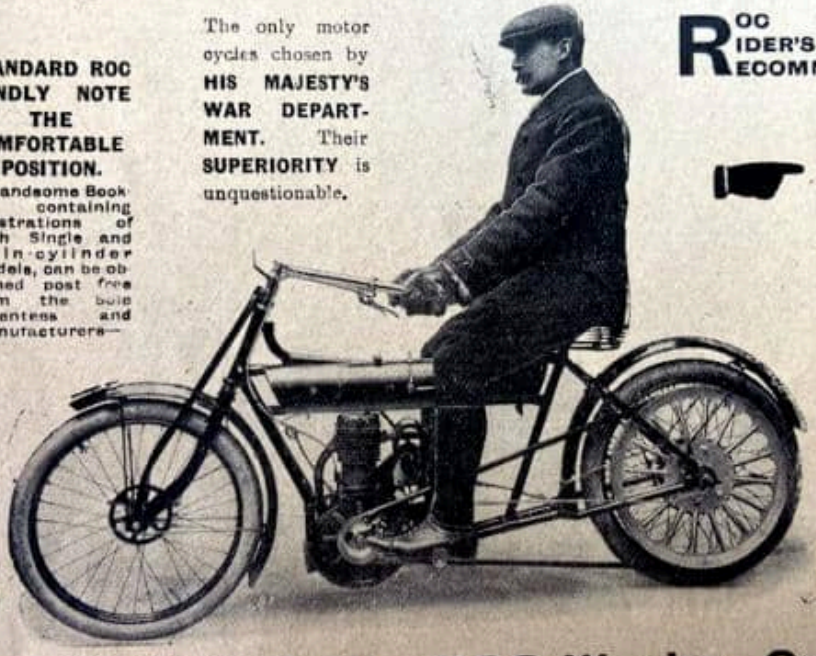
In answering this advertisement it is desirable that you mention "The Motor Cycle."

Ride a ROC and enjoy a Ride Of Comfort

STANDARD ROC KINDLY NOTE THE COMFORTABLE POSITION.

A Handsome Booklet, containing illustrations of both Single and Twin-cylinder Models, can be obtained post free from the sole Patentees and Manufacturers—

The only motor cycles chosen by **HIS MAJESTY'S WAR DEPARTMENT.** Their **SUPERIORITY** is unquestionable.



ROC RIDER'S RECOMMENDATION.

Army Service Corps.
Portsmouth,
April 9th, 1906.

Dear Sirs,—I enclose herewith cheque in payment for my Roc motor cycle. I take this opportunity of thanking you for your promptitude in delivery and trouble taken over details. I must say I am delighted with the Roc. It goes like a clock, and excites the admiration of everyone who sees it. I shall have the greatest pleasure in recommending the Roc to my friends, although it speaks for itself when once ridden. Wishing you the success your goods undoubtedly merit.

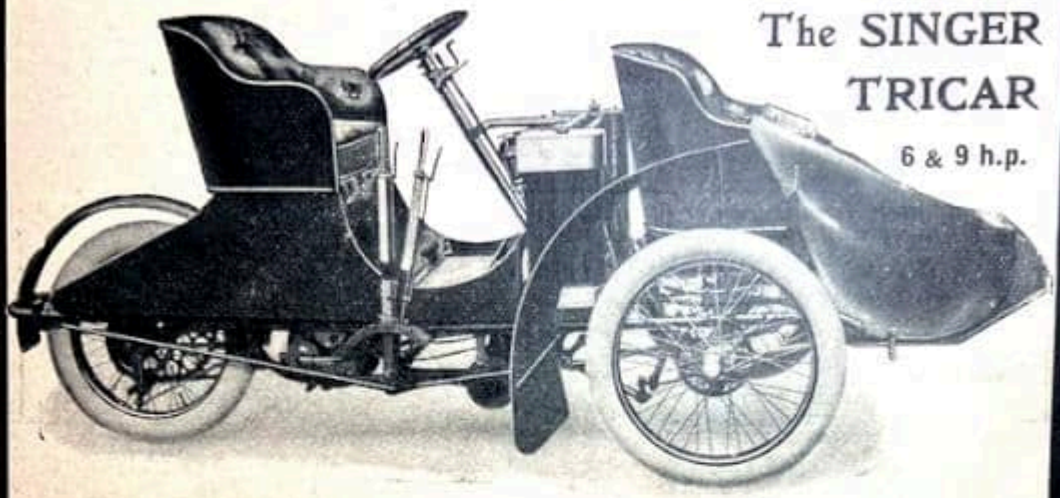
Yours faithfully,
(Signed)
A. F. Pery Knox Gore,
Lieut. A.S.C.

A. W. WALL, LTD., ROC Works, Guildford.

SINGER MOTORS.

The SINGER TRICAR

6 & 9 h.p.



DOUBLE-CYLINDER ENGINES. THREE SPEEDS AND REVERSE.

SPRING FRAME. POWERFUL BRAKES.

130 GUINEAS AND 145 GUINEAS.

Splendidly finished and luxuriously appointed, the Singer Tricar possesses a fine turn of speed, is a powerful hill-climber flexible, and easily controlled. On the 6 h.p. Mr. Clifford Earp has driven from London to Brighton and back on top speed.

Singer Tricar made absolutely Non-Stop Run in A.C.C. Reliability Trials, April 25th.

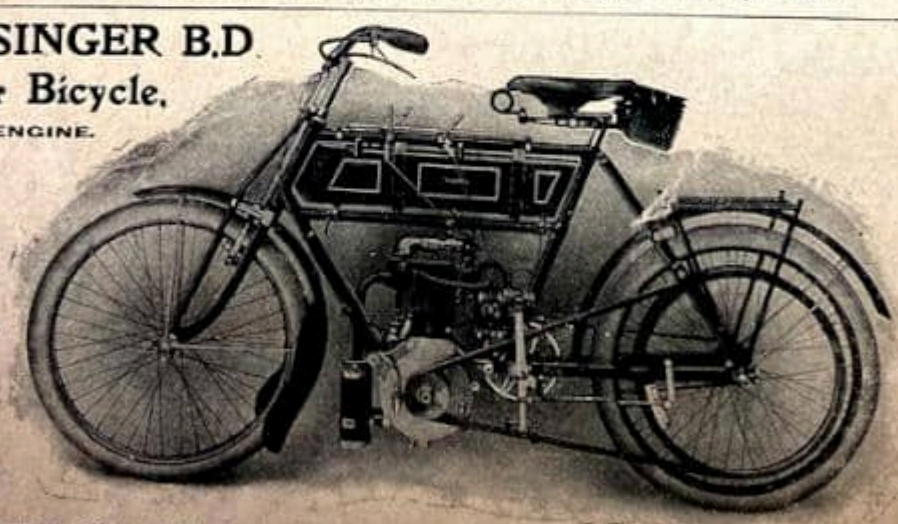
The SINGER B.D Motor Bicycle.

3 h.p. ENGINE.

High Tension Magneto Ignition.

—

50 gns.



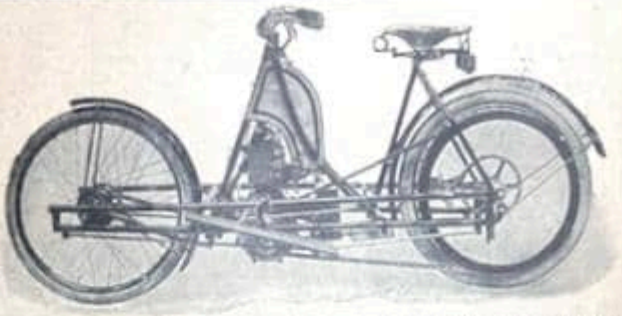
The Catalogue of Singer Motor Cycles is sent post free on request. These magnificent machines are doing splendid work in all parts of the world. For reliability and excellence of workmanship they are unsurpassed. May we send you full particulars? Trials by appointment at Works or at London Depot.

SINGER & CO. LTD., COVENTRY.

London Depot: 17, HOLBORN VIADUCT.

Z NITH

JUST THE THING FOR A HOLIDAY TOUR.



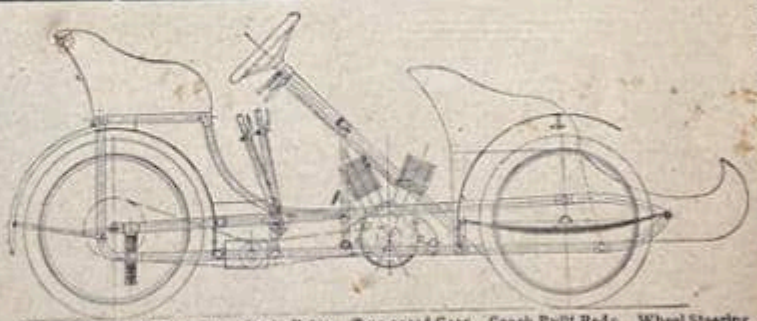
"THE ZENITH BICAR"—The famous spring-frame Motor Bicycle-de-luxe.

THIS IS THE MACHINE YOU WANT FOR EASE AND COMFORT.

It will carry you comfortably over the roughest roads. It is easy to drive in traffic. It does not side-slip in grease. Marvellous comfort. Can be ridden by lady or gentleman. NO PEDALS. NO FRONT FORKS to break. Starts like a Car.

PRICE with 4 h.p. (Abbins) engine, Bosch and Hadlow carburetter, Tonks four-engine clutch and starting handle, Watsonia belt, double accumulators and two-way switch, Brooks Bantam saddle, tyres and fittings throughout ....

43 GUINEAS NETT.



5 h.p. Twin-cylinder Engine. Chain Drive. Two-speed Gear. Coach Built Body. Wheel Steering.

TWO'S COMPANY—AND GOOD COMPANY TOO—on a "ZENITH TRICAR-DE-LUXE" (Spring-frame).

Built on the "Zenith Bicar" system. The upper and lower frames are connected by springs, and work independently. This method reduces vibration to a minimum, and obviates side-slip, besides making the machine the most comfortable on the market. Petrol capacity, four gallons. (Tank under driver's seat.)

PRICE Inclusive (No Extras) ....

80 GUINEAS nett. "A SPLENDID INVESTMENT"

A GOOD NAME FOR EXCELLENT MACHINES.

ALL STOCK MACHINES SOLD RIGHT OUT.

HAVEN'T TIME TO LOOK AFTER RESIDUAL OF SAME.

P.S.—MUCH TOO BUSY TO WORRY ABOUT TAKING MACHINES IN PART EXCHANGE.

CAN'T GUARANTEE DELIVERY FOR TWO MONTHS, IS SELLING LIKE HOT ROLLS.

P.S.—OUR NEW PATTERN "POPULAR TRICAR," BELT-DRIVE, BUCKET SEAT AND WHEEL STEERING, AT 55 GUINEAS NETT, IS SELLING LIKE HOT ROLLS.

Send for Catalogue of other models, including our "POPULAR TRICAR" at 55 guineas and 60 guineas nett cash, and our new little LIGHT CAR, 6-8 h.p., two-seated, at 120 guineas nett.

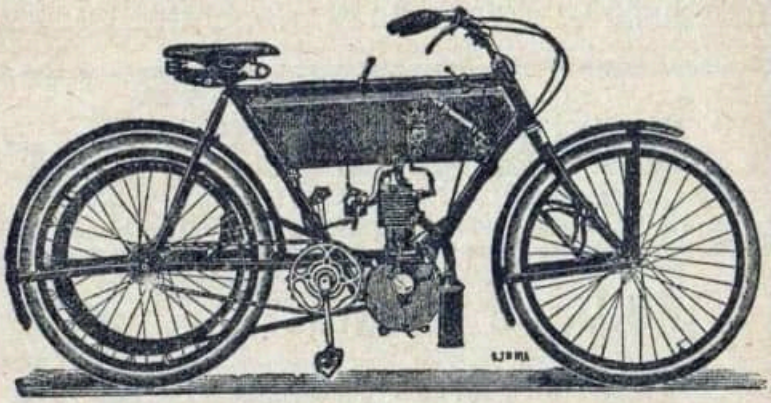
ZENITH MOTOR ENGINEERING CO.

101a, STROUD GREEN ROAD,
(NEAREST STATION, FINSBURY PARK.) LONDON, N.

La vraie
Motocyclette pratique
pour Touristes est

L'ALCYON

2 chx. - Poids : 38 kg.



ALLUMAGE PAR ACCUS OU PAR MAGNÉTO A BASSE TENSION (Licence LAURIN-KLÉMENT)

C'est la Moto ALCYON légère qui a été classée 1re dans le TOUR DE FRANCE 2,600 kilomètres

ORGANISÉ PAR L'AUTOCYCLE-CLUB DE FRANCE

Usines : 4 et 6, boulev. Bourdon, Neuilly-s.-Seine. - Magasin de vente pr Paris, 16, aven. de la Gde-Armée.

HERDTLÉ & BRUNEAU

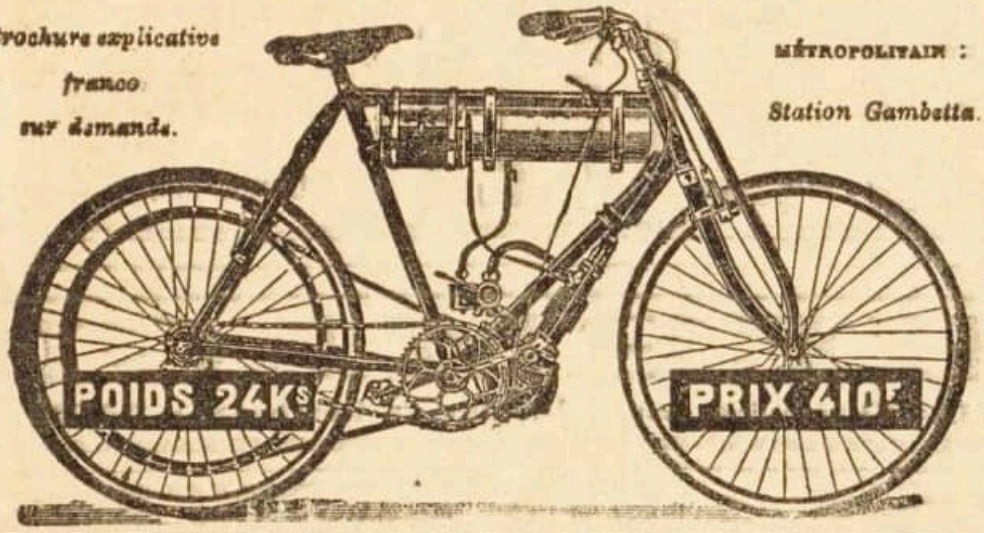
MOTOCYCLETTE LÉGÈRE

38 bis, Rue de la Chine, PARIS (20e)

Brochure explicative franco sur demande.

MÉTROPOLITAIN :

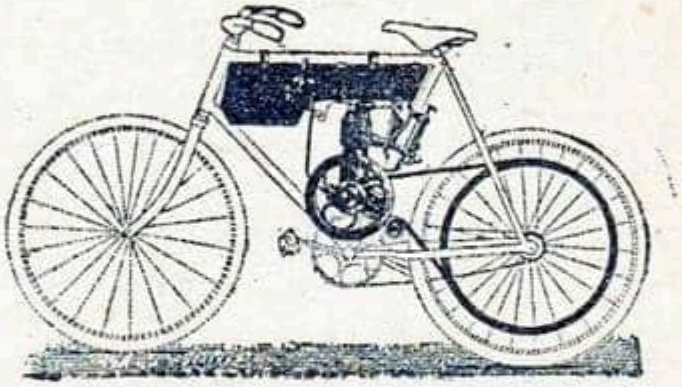
Station Gambetta.



Auto-Bicyclette "K-D"

BREVETÉE S. G. D. G.

Transformation instantanée
de la Bicyclette ordinaire
en Auto-Bicyclette



Poïds maximum de l'Auto-Bicyclette, 30 kilos.
Côtes de 8 o/o, sans pédaler.
Vitesses de 6 à 45 kilomètres.
Consommation : 1 litre d'essence par 40 à 45 kilomètres.

REMISE DE 5 0/0 POUR LES MEMBRES DU T. C. F.

A. KELLER-DORIAN

Constructeur

89 bis, rue du Dauphiné, LYON

LA MOTOSACOCHE

Société anonyme H. & A. DUFAUX & Cie

GENEVE

CAPITAL : DEUX MILLIONS DE FRANCS

Groupe moteur amovible avant la forme d'une SACOCHE de cadre permettant de transformer une Bicyclette routière ordinaire en une

BICYCLETTE A MOTEUR

Parfait engin de transport pour Touristes, Médecins, Officiers, Notaires, etc.. et même pour Dames.

SUCCURSALE POUR LA FRANCE :

41, rue Saint-Ferdinand, PARIS

LIVRE D'OR DE LA MOTOSACOCHE

1906

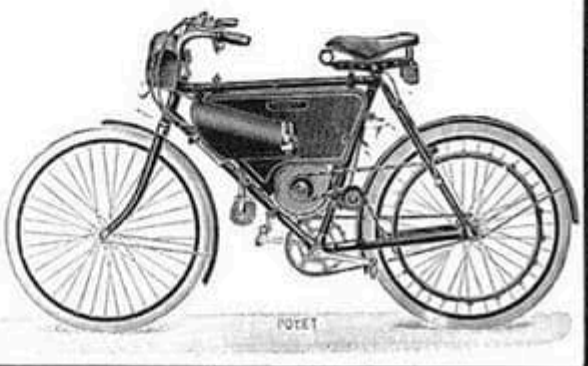
Course de côte d'Aix-en-Provence
(Bicyclettes à moteur)
1er, 2e et 3e Prix : LA MOTOSACOCHE

Course de montagne et de consommation
40 kilom. en Styrie et Carinthie
(Autriche)
1er, 2e et 3e MOTOSACOCHE

2 juin 1907

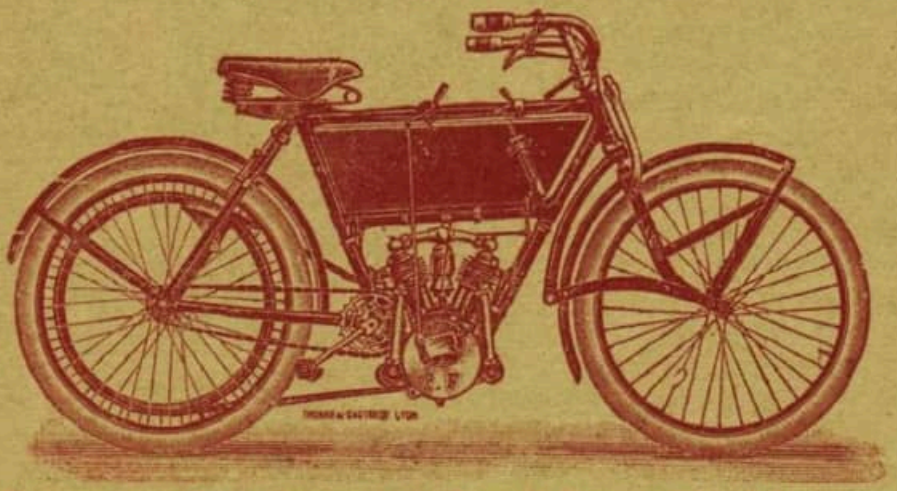
Concours de côte du Val-Suzon
(près Dijon)
3 kil. 800, rampes atteignant 9 o/o.
Bicyclettes à moteur (*chaînes enlevées*)
1re **Motosacoche** en 5 m. 37 s.
2e **Motosacoche** en 5 m. 41 s.
3e **Motosacoche** en 6 m. 17 s.

Envoi franco du Catalogue sur demande.



MOTOCYCLETTE PEUGEOT

2 Cylindres, type Tour de France



Sur cette Motocyclette, CISSAC a gagné le Tour de France (2.134 kil.) sans une panne ; 2e GIUPPONE ; 5e CHAMPOISEAU, également sur *Motos* PEUGEOT.

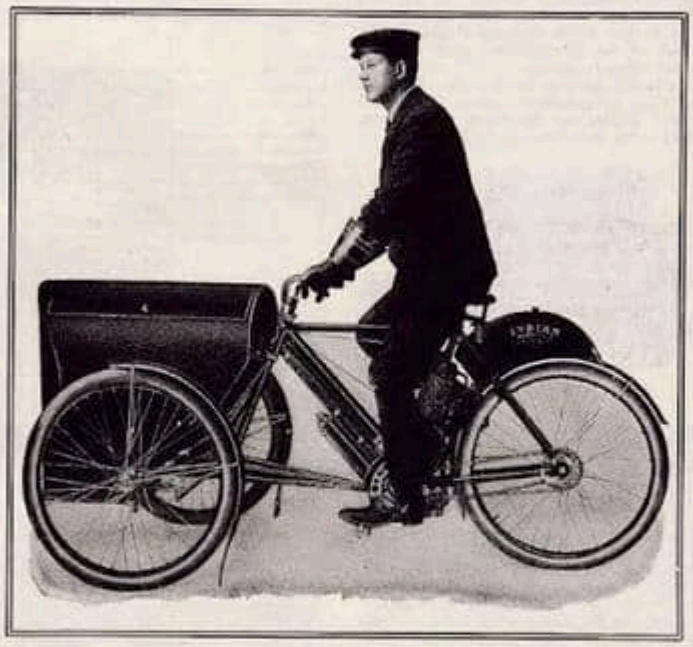
LES FILS DE PEUGEOT FRÈRES, Constructeurs, à Valentigney (Doubs)

Magasins de vente à Paris : 38 *bis*, avenue de la Grande-Armée

"FOR BUSINESS OR PLEASURE"

INDIAN

Motocycles
Tri Cars
Delivery Vans



FOR BUSINESS

Indian Delivery Van

QUICK, ECONOMICAL, SURE
A good advertisement for any MERCHANT, large or small.

Live dealers will be quick to appreciate the vast field the **Delivery Van** opens up in the commercial world and will write at once for full information.

HENDEE MFG. CO., Springfield, Mass.

ATTENDU que des explications fournies à l'audience, il résulte que les avaries constatées au moteur du demandeur proviennent de la mauvaise qualité de l'huile de **GRAISSAGE EMPLOYÉE.**

ATTENDU qu'en se servant de pareille huile, le demandeur détruisait son moteur aussi volontairement que s'il l'eut fait avec une **HACHE.**

PAR CES MOTIFS, le déboute, le condamne aux frais et l'engage à se servir exclusivement de

L'HUILE DE DION-BOUTON

En Anglais, s'il vous plait: **Whereas** from the explanations given at the hearing, it appears that the damage to the applicant's engine was caused by the poor quality of the lubricating oil used **Whereas** by using such oil, the plaintiī destroyed his engine as willingly as if he had done so with an axe. **For these reasons**, dismisses him, condemns him to pay the costs and orders him to use only

DE DION-BOUTON OIL

La vraie
Motocyclette pratique
pour Touristes est
L'ALCYON
2 chx. - Poids : 38 kg.
ALLUMAGE PAR ACCUS OU PAR MAGNÉTO A BASSE TENSION (Licence LAURIN-KLÉMENT)
C'est la Moto ALCYON légère qui a été classée 1re
dans le TOUR DE FRANCE 2,600 kilomètres
ORGANISÉ PAR L'AUTOCYCLE-CLUB DE FRANCE
Usines : 4 et 6, boulev. Bourdon, Neuilly-s.-Seine. - Magasin de vente pr Paris, 16, aven. de la Gde-Armée.

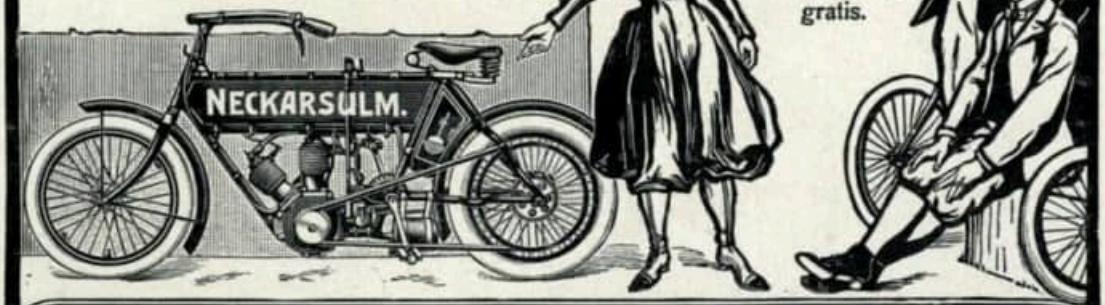
Hier, meine Herren, sehen Sie des Rätsels Lösung: Keine Ermüdung und doch große Leistungen; jetzt werden Sie die schwärmerische Verehrung für mein Neckarsulmer Motorrad begreifen, dem ich Tage des gesündesten, edelsten Genusses zu verdanken habe.

Das betriebssicherste Motorrad der Gegenwart.

Fahrräder.

Brems-Naben.

Prachtkatalog gratis.



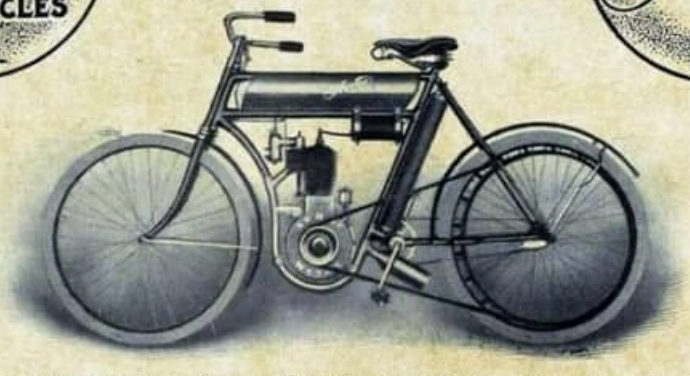
Neckarsulmer Fahrrad-Werke A. G.
Königl. Hoflief. Neckarsulm.

(a 1906)

THE WORLD OVER Armac MOTOR CYCLES

NOT BETTER THAN THE BEST
BUT BETTER THAN THE REST
AND AS GOOD AS THE BEST

THE WORLD OVER Armac MOTOR CYCLES



SIMPLICITY
QUALITY
POWER

RELIABILITY
NEATNESS
DURABILITY

If you ride a motor-cycle for pleasure, the best part of the riding season is yet before you. If you use a motor-cycle for business purposes, the ARMAC is reliable at all seasons of the year.

The steadily increasing demand for a thoroughly practical motor-cycle has forced us to enlarge the ARMAC factory for the third time in as many seasons.

Isn't this proof of ARMAC reliability and success? Your savings bank pays you 3 per cent. per annum on your savings. Armac agents make 25 per cent. in 30 days, and real live agents double their money in less than 90 days

Our catalogue is free and explains the merits of the ARMAC, and we have a very profitable agency proposition to explain to you.

Armac Motor Co., Sheldon and Carroll Ave., Chicago

ALL . .
ABOUT

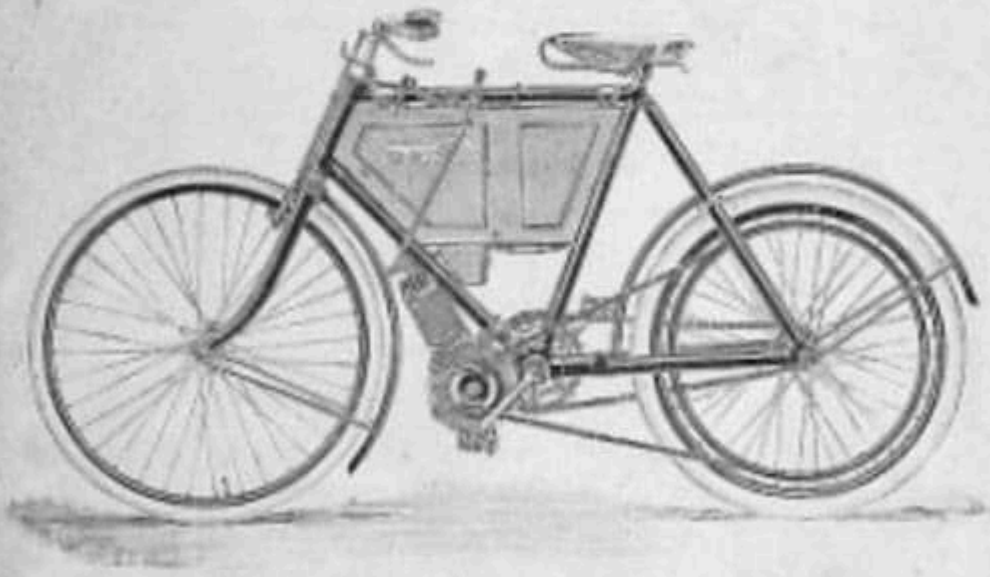
Nicholas

Motor Bicycles.

THE FASTEST, . .
CHEAPEST AND BEST.

ENGINE, 1½ h.p.
PRICE 40 GUINEAS.

Speed, 40 miles an hour.



The Nicholas Motor & Cycle Co..

34, Stroud Green Road,

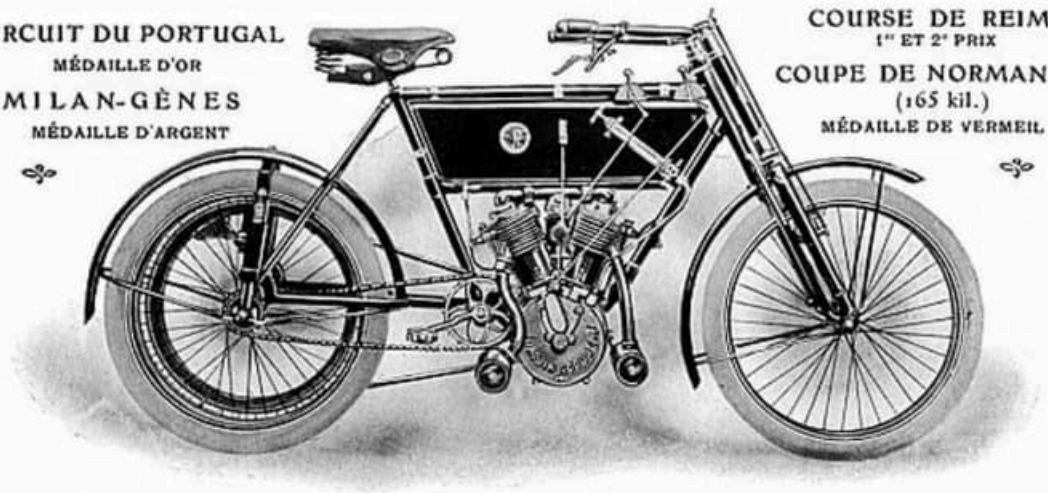
LONDON, N.

Motocyclette LURQUIN-COUDERT (Modèle 1906)

Moteur LURQUIN-COUDERT à deux cylindres. — Suspension avant et arrière. Breveté S.G.D.G.

CIRCUIT DU PORTUGAL
MÉDAILLE D'OR

MILAN-GÊNES
MÉDAILLE D'ARGENT



COURSE DE REIMS
1er ET 2e PRIX

COUPE DE NORMANDIE
(165 kil.)
MÉDAILLE DE VERMEIL

Toutes nos MACHINES sont munies de GARDE-BOUE et ACCESSOIRES

DESCRIPTION. — **MOTEUR LURQUIN-COUDERT**, force 5 chevaux, 2 cylindres inclinés à 45°, soupapes automatiques, hauteur cadre 52 centimètres, réservoir nickelé avec pompe viseur de graissage à l'avant contenant un litre d'huile et 8 litres d'essence, accumulateur Dinin, bobine et allumage « Nil Melior », carburateur Longuemare, lève-soupape commandé au guidon servant de régulateur, transmission par courroie trapézoïdale, 2 freins, pneumatiques Dunlop 650×60.

Prix de la machine complète avec accessoires . . . . . *net* 950 fr.
La même motocyclette, moteur 7 chevaux, pour course . . — 1100 fr.

Supplément pour fourche élastique, LURQUIN-COUDERT . *net* 45 fr.
— pour suspension arrière. . . . . — 50 fr.

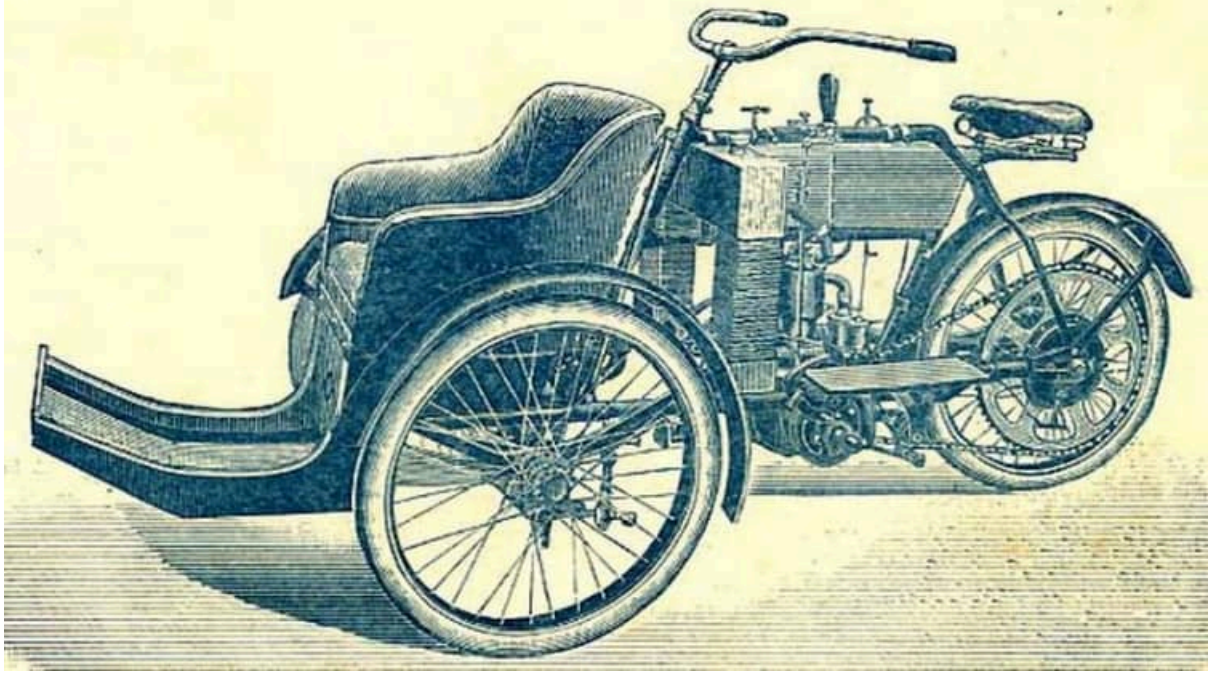
MÉTROPOLITAIN : Station AUTEUIL — **Usines et Bureaux : 19, rue Planchat, PARIS** — TÉLÉPHONE 907-32

DEMANDER LE CATALOGUE ILLUSTRÉ QUI PARAITRA LE 20 JANVIER

1906

Salon de l'Automobile, du Cycle et des Sports

Premier Étage. Balcon n° 3



The "AUTO-PHAETON"

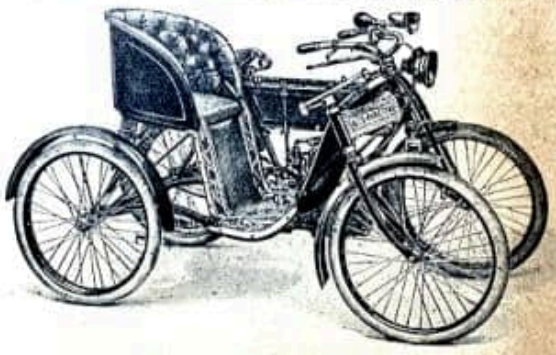
(PATENTED)

Is the best and safest SIDE CARRIAGE for Motor Bicycles.

It is constructed on scientific principles. Extensive trials have proved that it overcomes entirely the disadvantages connected with side carriages having one wheel only, viz., unreliable steering and strain on the frame of the motor bicycle.

It can be rigidly attached to any motor bicycle in the most simple manner in a few minutes, and forms with the same

A Handsome, Well-balanced, Four-wheeled Vehicle.



The front wheels are coupled like the wheels of a motor car,

The steering is therefore safe and easy.

The seat is beautifully upholstered and provided with excellent springs, assuring comfort on all roads.

The wheels of the standard pattern are fitted with best quality pneumatic tyres, 28in. x 2in. Other sizes can be fitted at corresponding prices.

All materials used in the construction of AUTO-PHAETON side cars are of the best and most reliable quality.

PRICE (including all fittings) - £14 nett.

WALTER LOWEN & Co., 36, Aldersgate St., London, E.C.

Sole Agents for United Kingdom and Colonies

B105.

BROOKS

ANOTHER IMPROVEMENT.

FOR SOME LITTLE TIME THE NEED HAS BEEN FELT for a Motor Cycle Saddle that can be set low on the Frame while not losing any of the advantages of the ordinary type. We have, therefore, just introduced a new model, B105, which is a modified design of our celebrated B100 motor saddle.

THE ADVANTAGE OBTAINED will be clearly seen on inspection of the illustration above. Instead of the girder ending **below** the peak, it is continued right up **level with the peak itself,** thus permitting the saddle to clear the top tube of cycle and to be set much lower than ordinarily.

Write Dept. 45. May we post you a copy of our 1906 Catalogue?

J. B. BROOKS & CO., LTD., THE SADDLE SPECIALISTS. **BIRMINGHAM.**

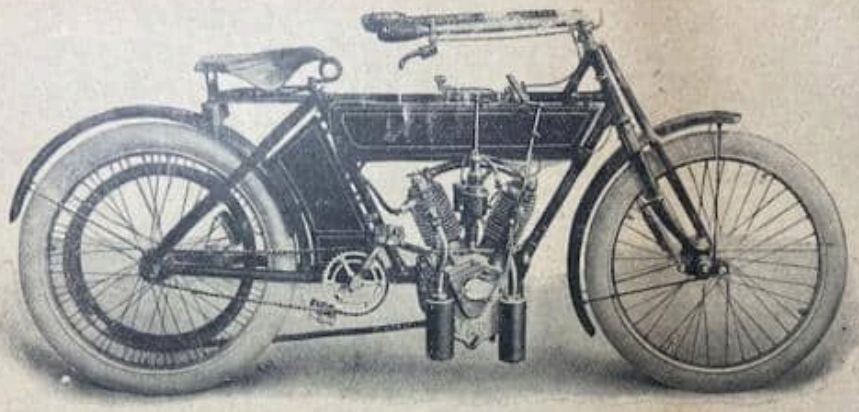
No. 6.

18½in. Seat Tube.

Allowing both feet to be placed on the ground.

Long Head.

Giving strength and steady steering.



Suits 4½ h.p. Minerva, 6 h.p. J.A.P., and all the leading twin and single-cylinder engines.

SOME POINTS.

FITTINGS for EVERY TYPE. DISC HUBS, PATENT SPRING FORK, THUMB SLIDES PATENT SAFETYSTEERING STEM, etc.

CHATER LEA FITTINGS.

N.B.—We supply the Trade only. Order through your local maker.

Works: 114-120, Golden Lane, London, E.C.

CLYDE Motors FOR 1906.

A CLYDE SUCCESS.

In the A.C.C. Quarterly Trials, April 25th, 1906, a 3½ h.p. Clyde made an absolutely NON-STOP RUN, and climbed Dashwood Hill in 1 min. 55-4/5 secs., thus proving both its speed and reliability.

The Quintessence of Vitality.

MOTOR BICYCLES.

2¾ h.p. Single Cylinder.
3½ h.p. " "
5 h.p. Twin "

CARS.

8-9 h.p., two, three, or four seats.

MY SPECIALITY---Clyde 3 h.p. Motor Bicycle, Magneto Ignition, all latest improvements, £23 5s.

G. H. WAIT, London Road, LEICESTER.

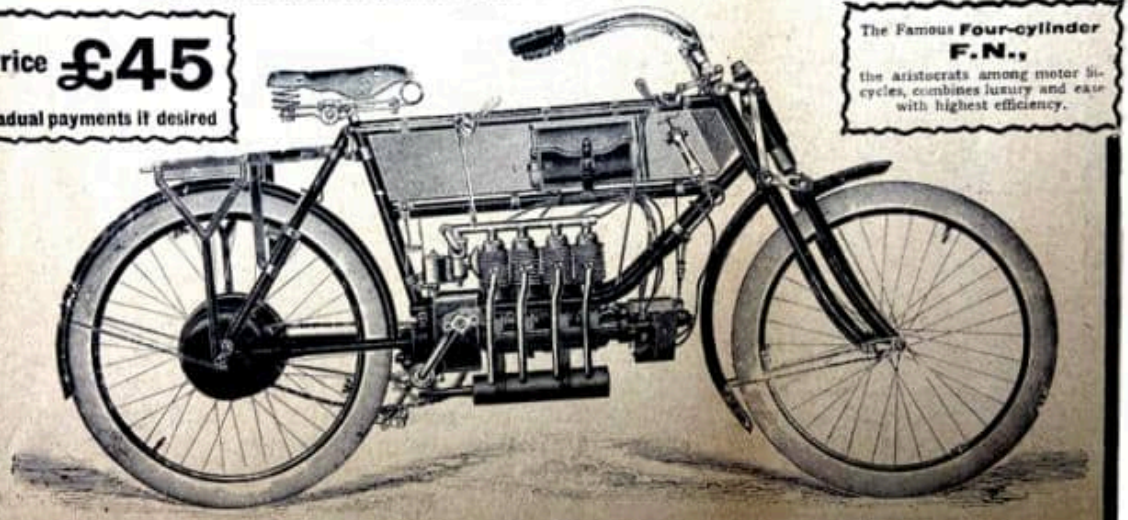
Anybody who has ridden the

FOUR-CYLINDER F.N. FOUR-CYLINDER

would never want to go back again to a single or twin-cylinder machine.

Price £45
Gradual payments if desired

The Famous **Four-cylinder F.N.,** the aristocrats among motor bicycles, combines luxury and ease with highest efficiency.



To ensure early delivery, orders should be placed at once with

The F.N. MOTOR AGENCY. 108, GREAT PORTLAND STREET, LONDON, W.

GAMAGES

For Motor Cycle Accessories.

NEW MOTOR LIST FREE.

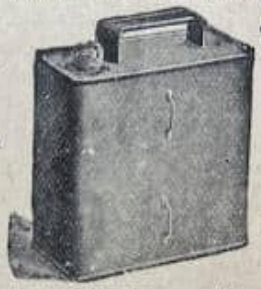
TYRES—We have the Largest Stock of Tyres in London. Palmer, Clincher, Dunlop and Bates, all well-known makes.

Cooper's Patent Splasher.

PATENT MUD SPLASHER.

For Motor Cycles, so formed that the mud falls clear of the wheel; cannot splash rider when going over muddy roads.
Price ... 2/6. Postage d.

Reserve Motor Petrol Tins.



Quarter Gallon size ...	9d.
Half "	1/1
One " " ...	1/9

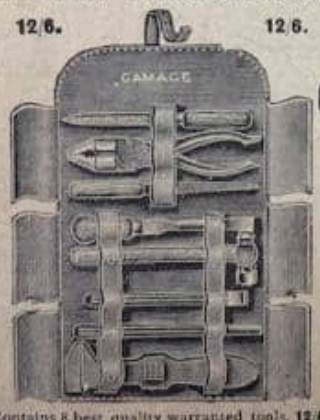
Specially made with Lugs for strapping to Motor Cycle.

The "PHINX" BELT DRILL.

Price .. 2/- Postage 1d.

The "Gamage" MOTOR CYCLE TOOL ROLL.

12/6. **12/6.**



Contains 8 best quality warranted tools, 12/6.

PHILKUT
THE NEW TYRE STOPPING
PHILKUT
The Latest & Best Discovery for Repairing Cuts in Motor Tyres
"GAMAGE" Holborn London E.C.

(Registered)
PHILKUT,
The stopping that stops there
1s. 3d. small tube, 2s. 9d. large ditto.

A customer writes: "Please send me a large tube of 'Philkut.' I find it an excellent stopping for my motor tyres, filling up the cuts and remaining in position well."
(Signed) S. TUNGATE, "Trentham," Norwich.

The "Holborn" Motor Cycle Hor.

With double-twist, very loud and deep tone. Price, nickel-plated, 5/3. Larger size, 10/6. Postage 3d.

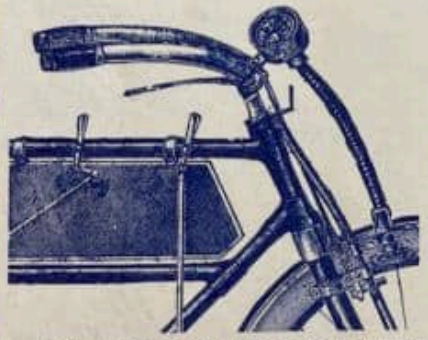
THE HOLBORN SPARKING PLUG.

A high-class plug at a reasonable price. Complete with cap and washer, 1/-. A user says: "I had one of your Holborn Plugs some time ago, which has given every satisfaction, having run it over 1,000 miles."

A. W. GAMAGE, LTD., HOLBORN, LONDON, E.C.

KNOW YOUR SPEED!

The "GOODLAD'S" Improved Patent SPEED INDICATOR



Will tell it to you accurately.

VOUCHED FOR BY MANY LEADING AUTHORITIES IN THE WHEEL WORLD.

Owing to the increasing demands for these Indicators, we have been able to produce them cheaper and still maintain quality.

No. 1—Registering to 28 miles per hour, now costs **12/6**
No. 2— " 42 " " " **15/-**
No. 3—With Flexible Shaft (as illustrated) **31/6**

Booklets from Sole Agents—

MARKT & CO., Dept. III.,
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GRIPWELL

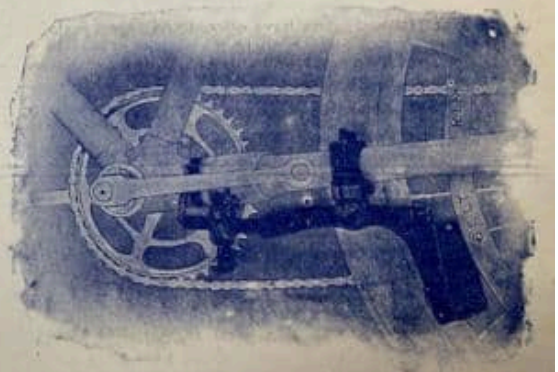
MOTOR CYCLE BRAKE.

Reliability with Simplicity. Effective and Inexpensive.

Machine can be wheeled backwards.

Brake no obstacle in repairing tyre or removing wheel.

Made to fit any make of motor bicycle or tricar, with or without pedals.



On receipt of P.O. 15/6, brake will be sent carriage paid.

WASS & COCKS, LTD.,
West Ealing.
SOLE PATENTEES and MANUFACTURERS.

NEW AND REVISED EDITION NOW READY.

MOTOR CYCLES

AND

HOW TO MANAGE THEM.

An indispensable book for all who own or think of purchasing a motor bicycle or tricar.

Written by practical motor cyclists.

PRICE: ONE SHILLING NET.
Post free, 1/2.

ILIFFE & SONS LIMITED,
20, TUDOR STREET, LONDON, E.C.

"Automobile Soap."

INCOMPARABLE FOR CLEANING THE HANDS OF MOTORISTS, ENGINEERS, &c., FROM OIL, DIRT, AND GREASE.

A fragrant soap of disinfectant properties that acts instantaneously, and will not harm the tenderest skin.

NO RUBBING OR SCRUBBING REQUIRED.

DIRECTIONS FOR USE.—Take a little into the palm of one hand, and gently work over both hands and into the nails—then add water and lather in the usual way.

"Automobile Soap" is put up in 1/- pots; and quarter-cwt. kegs, 8/6 each; half-cwt. kegs, 16/- each.

SOLE MANUFACTURERS—

THE "SANITAS" CO., Ltd.,
Lockaley Street, Limehouse, London, E.

"J.A.P." Motors

AGAIN VICTORIOUS.

Hertfordshire A.C. Hill Climb: 6 h.p. JAP fastest time in Passenger Class, beating 9 and 10 h.p. machines. Time—50⅘ seconds (second best time 59⅘ seconds).

Essex Motor Club Hill Climb: 6 h.p. JAP started on Scratch and gained first place. Also gained **silver medal** for **fastest time,** again beating 9 and 10 h.p. machines.

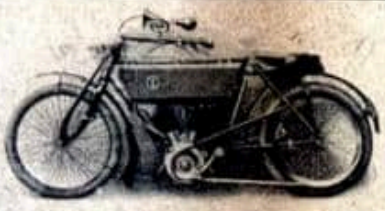
Write for **ILLUSTRATED CATALOGUE** of Engines, Bicycles, and Tricars.

JOHN A. PRESTWICH & CO., 1, LANSDOWNE ROAD, TOTTENHAM, LONDON, N.

Telephone—1822, Tottenham. Telegrams—"Prestwich, Tottenham."

Lurquin & Coudert

(PARIS).



Latest Improvements, 7 h.p. Air-cooled, Twin-cylinder, £46.

Noted for comfort, reliability, hill-climbing, smooth and almost silent running. Easy to control and regulate from five to fifty miles an hour.

OTHER MODELS, viz., 4 to 5 h.p., £40; 3 to 3½ h.p., £31; 2 h.p., £27.

Tricar, Latest Paris Models, £65 to £80.

ENGINES SUPPLIED.

The L.C. MOTOR AGENCY,

18, Eldon Street, London

Will forward Illustrated Catalogue on receipt of postcard

THE "GIVAUDAN"

ALWAYS SCORES.

J. PERKINS, 1st from scratch Ten Miles Handicap, Canning Town, Easter Monday.

E. VARNEY, 1st on Good Friday.

Both on "CROWNFIELD" Motor Cycles, fitted with GIVAUDAN ENGINE.

ORDER YOUR MOTOR CYCLE FITTED WITH

"GIVAUDAN" Engine

From 2 h.p. single cylinder, to 6 h.p. twin cylinder, air-cooled and water cooled, for cycles and tricars. Also 8 h.p. twin and 10-12 h.p. four-cylinder, water cooled, for light cars.

FASTEST, MOST POWERFUL, RELIABLE.

Send for particulars. Trade only supplied.

GIVAUDAN MOTORS

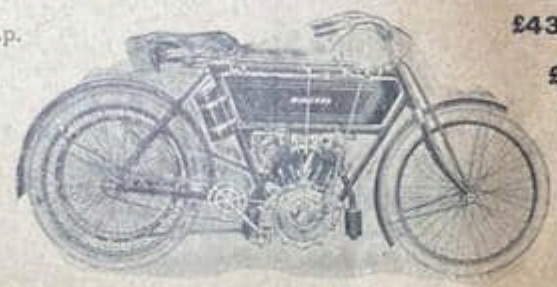
1, GRESHAM ST., LONDON, E.C.

4½ h.p. £43.

3½ h.p. £32.

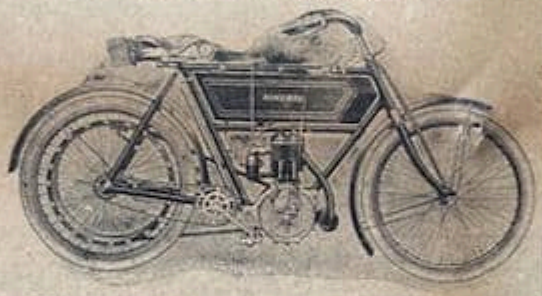
2¾ h.p. £29.

2 h.p. £27.



4½ h.p., Two Cylinders.

Maple Hill Climb, MINERVAS 1st, 2nd, Class A, 21st March, 1906.



4½ h.p. MINERVA 1st in the Bangor Hill Climb, 21st April, 1906.

2 h.p., 2¾ h.p., 3½ h.p., Single Cylinders.

Catalogue on application.

Gradual payments arranged.

Magneto Ignition, £7 extra.
Spring Forks, £2 10s. extra.

MINERVA MOTORS, LTD.,
40, Holborn Viaduct, London, E.C.
Telegrams—"Citrateonic, London."

Spare parts and repairs:
149, Farringdon Road, E.C.

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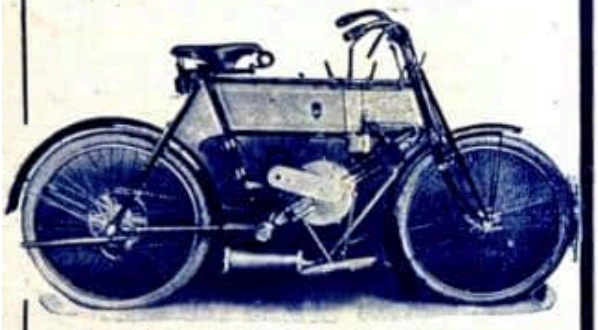
MOTOR BICYCLES

are built on sound mechanical lines, and are fitted with their patent **TWO-SPEED GEAR**, which is unrivalled for **SIMPLICITY** and **EFFICIENCY**, and gives a direct drive from engine to road wheel on both gears.



This Gear has now been in use for two seasons with growing favour, and by its aid the machine can be mounted on any hill, and for busy streets and winter riding it is indispensable

High-tension magneto ignition if desired.

The two-speed gear can now be adapted and fitted to almost any make of machine

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G.B.

STOP PRESS TELEGRAM.

Auto Cycle Club Second Quarterly Trials. G.B. 5¼ h.p. Standard Touring Machine again accomplished fastest time up Dashwood Hill.

A FEW EXTRACTS FROM CUSTOMERS' LETTERS.

"I am writing to let you know how delighted I am with the 'G.B.' motor cycle I recently purchased of you. I don't think there is any hill too steep for it, and I have not had a second's mechanical trouble.

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"I am highly satisfied so far, and the machine is admired by all, in fact, the attention it gets is sometimes rather embarrassing to myself."

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West Kent Garage, Sydenham, London, S.E. 'Phone 58

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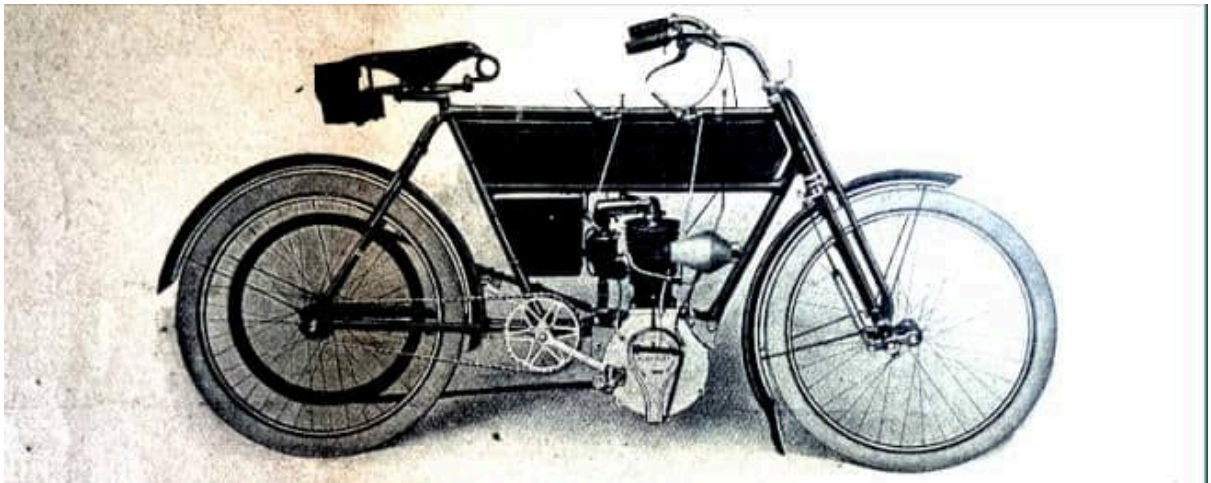
Sole London Agents for "Whittle's" Patent Link-grip Motor Cycle Belts.



FOR RELIABILITY AND POWER, THE "QUADRANT" 3½ h.p STANDS PRE-EMINENT.

A.C.C. 1st Quarterly Trials, Jan. 20th, 1906, 125 miles non-stop run. The **"Quadrant" 3½ h.p. Motor Bicycle** obtained a **NON-STOP** Certificate, and **beat** machines of much greater horse-power up Dashwood Hill. **SIX** machines **FAILED** to mount the hill at all.

On Saturday, the 27th Jan., 1906, under the auspices of the North Herts A.C., a 3½ h.p. **"QUADRANT"** carrying an eleven stone rider climbed Offley Hill, the steepest portion of which is 1 in 8 (certified), in the wonderful time of 50 seconds. This was done under adverse conditions, the road being very heavy, and a gusty wind against the driver.

In the Lewisham Automobile Club Hill-climb at River Hill on the 10th February, 1906, the **"Quadrant"** 3½ h.p. Motor Bicycle did fastest time out of twenty-two entries.

On February 28th, 1906, under the superintendence of the Chatham Club, and in the presence of about 100 spectators, the 3½ h.p. **"Quadrant,"** with chain removed, climbed Boxley Hill, near Maidstone, reputed to be the worst hill within 50 miles of London.—*The Motor Cycle*, March 5th, 1906.

The Quadrant Cycle Co., Ltd., Birmingham.

DEPOTS: London—119, Newgate Street **Manchester—4, Chapel Street, Victoria Street**
Bristol—45, Park Street. **Cardiff—35, Castle Street.**

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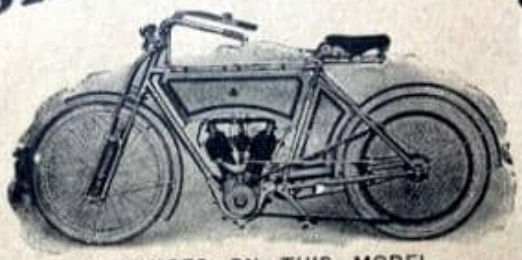

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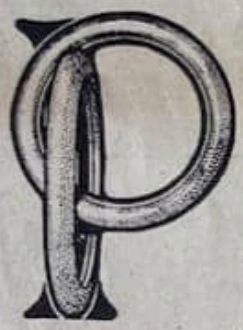

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Prices and particulars on request.
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THE
PETER —Patent— Puncture-proof **BAND**
costs but a few shillings,
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saves pounds, nay, cwts of trouble.
Every careful motorist fits them in his tyres.

BEFORE ADOPTING A

Two-Speed Gear

see that you get quoted for

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necessary to operate your machine with the new system, and make sure the parts will be supplied to fit properly and are not

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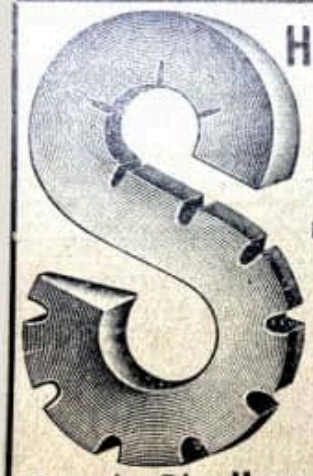

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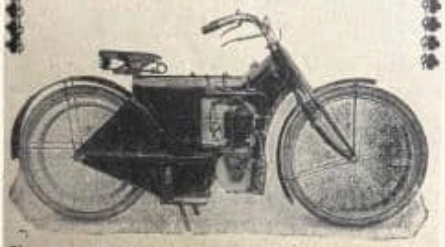
HUMBER, 2¼ h.p., Dunlops, spray, Vim jack, B90 saddle, P. and R. accumulator, pull trailer anywhere; £12 10s. —Carr. below.

BROWN, 2½ h.p., Palmer back, Clincher front, Longuemare, good order; £10 10s.—Carr. below.

THE MIDGET BICAR.

A new departure in motor cycle construction enabling machine to be built extremely low (top of saddle only 30in. from ground) and at the same time having larger capacity for carrying Petrol (1½ gallons), Lubricating Oil (1 quart), Accumulators, Car, Tools, etc.



No fear of Side-slip! No Frame Tubes to snap!

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Fitted with the latest patent **3 h.p. Fafnir Engine,** M.O.V., Girder Front Forks, Rubber Belt, **28in. x 2in. Clincher Tyres,** rear Rim Brake, Bowden Exhaust Lift, Handle-bar Switch, white Mudguards, Rubber Covered Footboards, Belt Adjusters, **Two Accumulators and Swing Stand,** which when in use keeps both wheels off the ground, a great convenience for cleaning and storing the machine.

Each machine tested on the road and sent out complete with number plates, tools, and accessories.

Easy Terms arranged

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Arrangements made for trial rides, or machines sent on approval.

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MOTOR Cycle Frames, etc., any size and shape, Chater-Lea fittings, girder head, engine lugs, complete, from £3 10s.; complete motor cycles, Fafnir engines, 3 h.p., built for £25 cash, or instalments arranged.—Charlton Motor Cycle Works, 366, Woolwich Road, S.E.

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All motorists or cyclists who value time and trouble should use Taylor's Patent Quick Grip Spanner. It grips any size, or at any angle, and self-adjusting. Every one guaranteed.

Motor car size, **2/9.** Motor cycle size, **2/3.**
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CHEAPEST, NEATEST, BEST.

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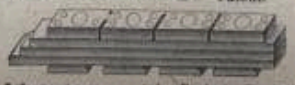

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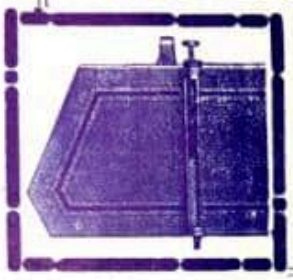

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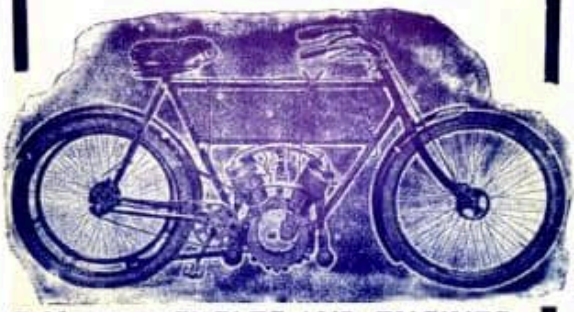

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DELIVERY FROM STOCK.

1906 MODELS, with Accumulator or Magneto Ignition.

2, 3½, and 4 h.p., M.O.I.V. ... from £25 0 0 nett
4½ to 5 h.p., two-cylinder... ... from £34 8 0 nett

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We can supply all parts for 2¾ h.p. engines.

Set of four N.F. Engine Spanners, 1/3, post paid. Send for price list.

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"Royal Ajax," "N.S.U." etc., etc. Cash or on monthly payments. All makes of cycles from 10/- a month. Send for free price list.

The Silver Queen Cycle Co., Ltd.,
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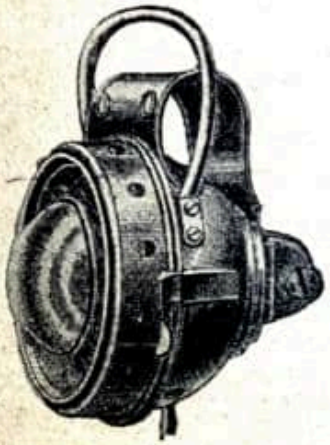
THE NEW "G" MOTOR CYCLE LAMP.

With Separate Generator and Bull's Eye Lens in Centre.



This was introduced at last Olympia Show, and has been sold with excellent results and proved to be the best Lamps on the market.

Nickel-plated with bull's eye in centre.

G. GOLDSCHMIDT, 323, Green Lanes, London, N.
Telephone: 2229 North.
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Can be avoided by using the

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"The fan I bought from you last year has been worth a lot to me. I can go up any hill now without overheating. I think this speaks well for the fan you make. I forgot to mention that I drive my fan with a piece of whipcord, so it does not take much power to drive."

(Signed) HY. RICKETT.

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XL'ALL SPRING FORK ATTACHMENTS.

NO MOTOR PERFECT WITHOUT THEM.

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PERFECTLY RIGID.

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NO SIDE PLAY WHATEVER

WILL FIT ALL MACHINES.

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ONLY 17/6

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They give incredible comfort.

Eclipse Motor & Cycle Co. Martineau St. BIRMINGHAM.

JUNO MOTOR CYCLES
ARE THE BEST.

LISTS POST FREE

3 h.p., £36. £3 monthly. 10% dis. for Cash.

Improved 1906 Fafnir Engine, 80 mm. by 80 mm. Low Frame. Splendid Hillclimber.

Write for List giving full details. Largest stock of Motor Cycles in the Trade on view. Accessories of all kinds at lowest prices.

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COAN CASTS CLEAN CRANK CASES
MOTORS 2 H.P. TO 200 H.P.
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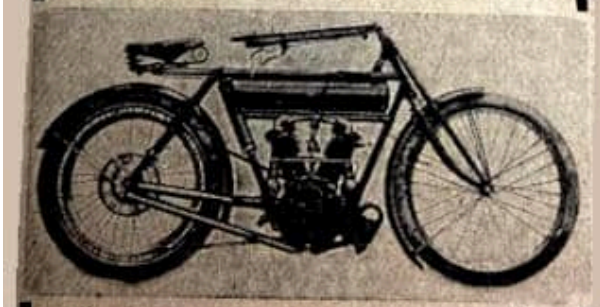
R.W. COAN 219 GOSWELL RD. LONDON E.C

LONDON AUTO CO.
CLAPHAM ROAD, S.W.
Motor Cycle Manufacturers.



Prices of complete machines, from **20** guineas.
Catalogue on application.

WHERE
THE MOTOR CYCLE
CIRCULATES:

601, GREEN LANES,
HARRINGAY,
DEAR SIRS, 20/3/'06.

The small advert. of my Cold Vulcanizing Outfit in your trade columns of "The Motor Cycle" has brought me customers from all parts of the United Kingdom, but as I have just received the enclosed from Rhodesia, South Africa, and had one from Canada last week, I thought you would be pleased to know, as it shows the value of "The Motor Cycle" as an advertising medium.

I remain, yours sincerely,
S. C. HUDSON.

59, HAYDON'S PARK ROAD,
WIMBLEDON, S.W.
DEAR SIRS, *March 3rd*, 1906.

I enclose you a letter from a customer in Quetta, India. I am sending you this in case you do not know how far "The Motor Cycle" extends. He mentioned having seen the advertisement in "The Motor Cycle" when first he wrote.

Yours truly,
G. ALDINGTON.

ADVERTISERS GET REPLIES
FROM
INDIA,
SOUTH AFRICA,
AND
CANADA.

Simple and Reliable.

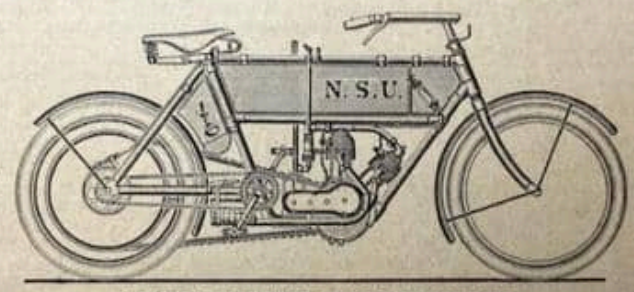
N.S.U.

MOTOR CYCLES.

Powerful and Fast.

SINGLE CYLINDER,
from 2 to 3½ h.p.
M.O.V.
Accumulator
or
Magneto Ignition.

THE BEST
FOR DAILY USE.



TWIN CYLINDER,
4 h.p. and 5½ h.p.
A.O.I.V.
Accumulator
or
Magneto Ignition.

For Heavy Weights and Passenger Attachment.

UNSOLICITED TESTIMONIAL.

The 5½ h.p. machine delivered in January has given entire satisfaction, having up to date covered about **2,000 MILES WITHOUT AN ADJUSTMENT BEING NECESSARY.** The 5½ h.p. machine delivered recently has been on the road for about a week, and is also quite satisfactory.

Liverpool, 30th April, 1906. (Signed) E. L. FEHR.

SPECIALITIES.

N.S.U. SPARKING PLUGS. N.S.U. BELT FASTENERS. N.S.U. FREE ENGINE CLUTCH. N.S.U. TWO SPEED GEAR AND FREE ENGINE.

Illustrated Handbook, "Practical Hints for the Motor Cyclist," 8d., post free.

REPAIRS CATALOGUE GRATIS. SPARE PARTS.

N.S.U. CYCLE & MOTOR CO., 78, Charlotte Street, London, W.

THE Prested COIL

Ensures absolute satisfaction. Coils of every size for every purpose. Great improvement. Fastest trembler. Largest spark. New multi-cylinder pattern with separable units, allowing withdrawal of units and instantaneous repair without disturbing rest of coil.

POLE FINDER

Price 1s. 6d., post free.

THE Prested PLUG

Beyond question the best. Splendid make and finish. Unaffected by oil or soot. Practically indestructible. Full details free. Samples 4s. 6d., post free.

Protected Terminals 1s. 6d.

Connecting Clips 6d., or with one yard high tension wire fitted, 1s. 1½d., post free.

WRITE FOR FULL CATALOGUE.

THE PRESTED MINERS' GAS INDICATING ELECTRIC LAMP Co., Ltd, Dept. C,

Elthorne Rd., Holloway, London, N.

BECAUSE THEY ARE

Better at Less Cost

THAN OTHERS, YOU SHOULD USE THE PRESTED INVENTIONS.

THE Prested BATTERY

The World's Best Accumulator.

Famous for its higher efficiency, greater reliability, longer life, and lower price. Sizes to suit every motor. Catalogue and useful booklet post free.

CELLUDINE

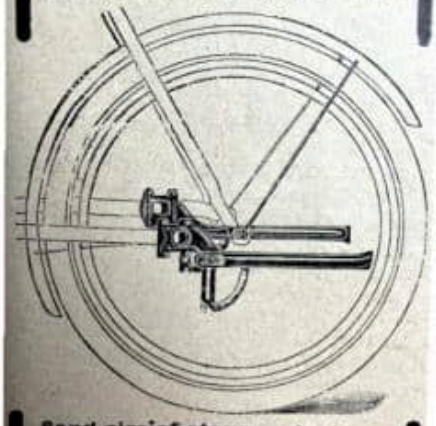
The Prested Celluloid Repairer.

Price 1s. 1½d., post free.

THE Prested COIL

IMPROVED PRICE'S STANDS ARE THE BEST

Black enamelled .. 10/6 pair.



Send size of stays and wheel.

SOLE MAKERS—
SMITH, NORTH & PRIESTLAND,
Premier Works, Ellis Street,
BIRMINGHAM.

THE SERVICE.

Powerful Brakes. Dunlop ½ Tyres. Low Frame.
Excellent Hill climber.

1906 MODEL.

Single Cylinder.	Accumulator.	Magneto.
3 h.p.	£27 6 0 ..	£30 19 6
3½ h.p.	£28 17 6 ..	£33 1 6
4 h.p.	£29 8 0 ..	£33 12 0
Twin Cylinder ..	£34 2 6 ..	£41 9 6

THE PLACE FOR EVERYTHING FOR THE MOTORIST.

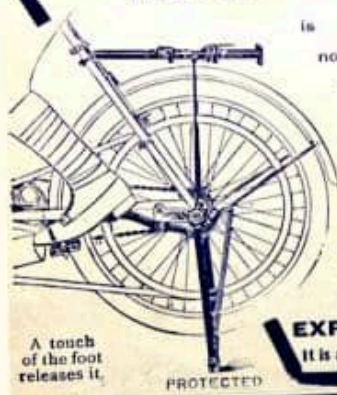
Terms: Cash, Extended Payments, or your present machine in part payment.

If you are purchasing a motor, write for our Motorists Buyers' Guide.

THE SERVICE COMPANY, LTD.
(The Civil Service Motor & Cycle Agency)
FEATHERSTONE BUILDINGS,
HIGH HOLBORN, LONDON, W.C.

Agents for
QUADRANT,
TRIUMPH,
PHŒNIX,
ARIEL,
WOLF,
REX,
and all other leading makes of
MOTOR CYCLES AND TRICARS.

HANDY



is not the word to describe the

"MILLENNIUM"

EXPRESS STAND.
It is a Boon to any Motor Cyclist.

A touch of the foot releases it.

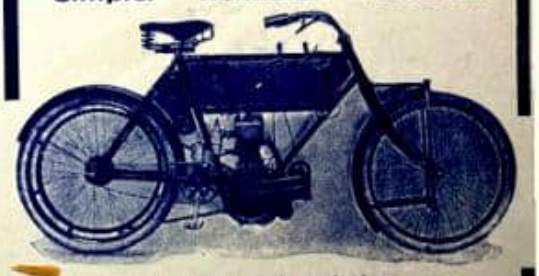
PROTECTED

Lake & Elliot,
makers of the "Millennium" Accessories for Motor Cycles and Cycles,
Albion Works, Braintree, Essex,
will send you a List. Write a P.C.

KELECOM MOTOR CYCLES.

Single and Twin-cylinder.

Simple. Reliable. Powerful.



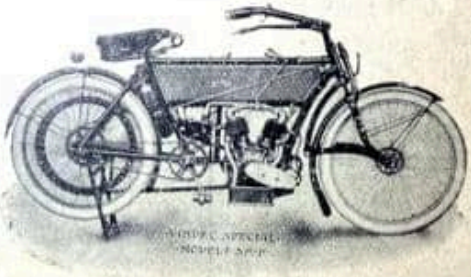
Write for particulars and prices
CRYPTO CAR & CYCLE Co., 14, Mortimer St., London, W.

VINDEC SPECIAL

2¾ h.p. and 3½ h.p. single-cylinder.

5 h.p. two-cylinder. Rigid or Truffault suspension forks.

Direct drive or two speed gear and free engine.



High tension magneto ignition.
Two large band brakes.
2½in. "A WON" tyres.
Large size Middlemore's "Rideasy" or Brooks' B100 saddle.

MODEL F WITH TRUFFAULT SUSPENSION FORKS, PRICE £52.

THREE YEARS OLD AND STILL GOING GOOD.

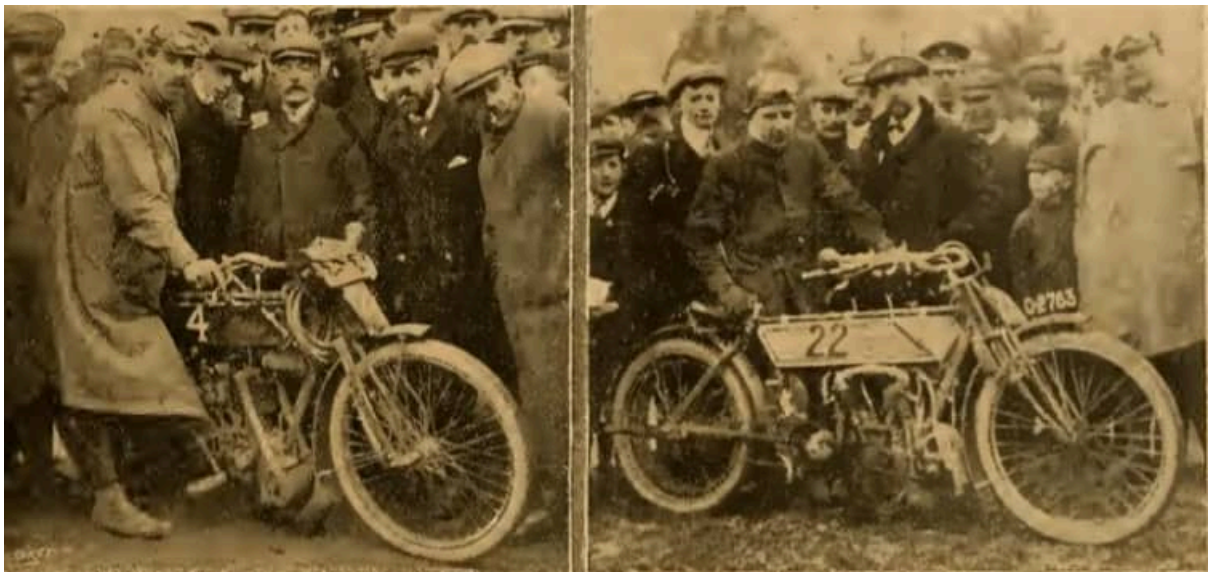
From Mr. J. Hardress Waller, *Galway, Ireland, March 26th, 1906:* As regards the health of my faithful old "Vindec" it may interest you to hear that she still runs as strong as ever, although she is now well in her third year. I have used her with both forecar and sidecar, and, old as she is, she still drags 26 stone live weight without the use of a two-speed gear. This is, I think, wonderful evidence of the lasting qualities of the machine, more especially when one recollects the dreadfully rough roads we have in the West of Ireland, to say nothing of the mountainous country. I have never ridden a machine with such reliable engine control and the brakes are the best I have ever seen on a motor cycle.

Let us send you our Booklet of opinions of satisfied riders and a descriptive List of our 1906 Models.

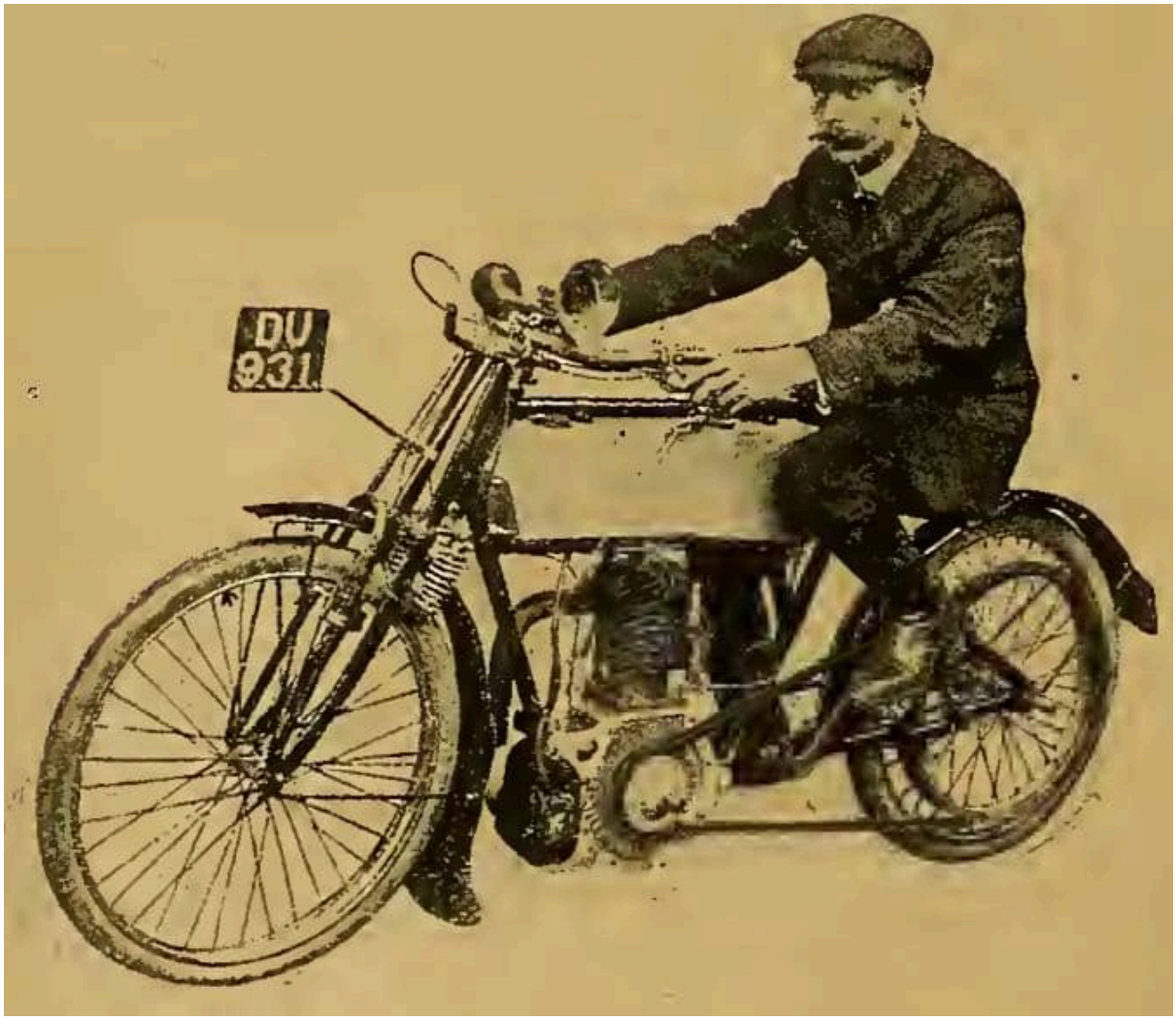
South British Trading Co. Ltd 13-15 WILSON STREET, FINSBURY, LONDON, E.C.

1907

THEFIRSTTTraceswere held on the Isle of Man, where the authorities had a more enlightened attitude towards road racing than their mainland counterparts. Thesingle-cylinder class was won by Charlie Collier on the 500cc JAP-poweredMatchlessbuilt by him and his brothers. It averaged38.5mph and 94.5mpg over 158 miles (10 laps of the St Johnscircuit – bikes weren't ready for the mountain circuit). Twin-cylinder honours went to RemFowler on his Peugeot-engined Norton at 36.2mph. Getting away from the odd Continental 55kglimit on racing machines, the name of the Tourist Trophysaid it all. This was a race to encourage advances in real motorcycles – no weight limit, full-size saddle and mudguards and at least 5lb of tools to be carried. Fuel was limited, demanding 90mpg from the singles and 75mpg from the twins. So the fastest bikes on the road were required to run more economically than a 21st century commuter bike. What price progress?You'll ĭnd the story of how the TTwas conceived (in a railway carriage) the background, a race report, loads of background gossip and RemFowler's description of the race in the 1907 Features section. The legend starts here.

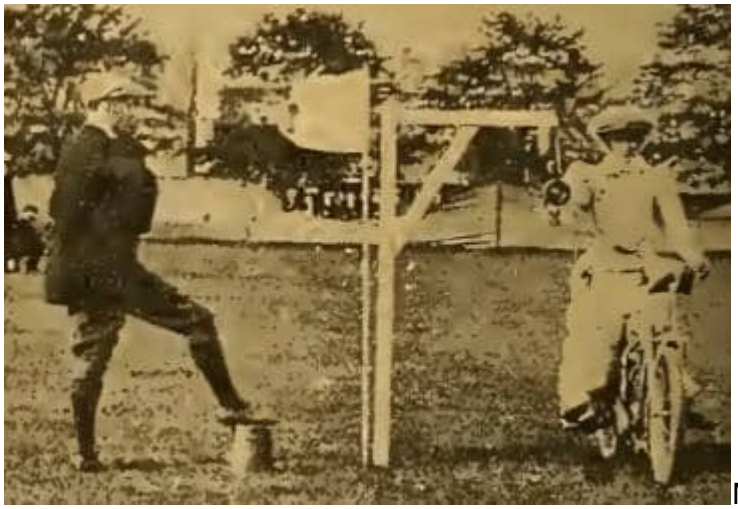


Thewinners: Charley Collier (left) with the Matchless his family made, and RemFowler with his Norton-Peugeot.

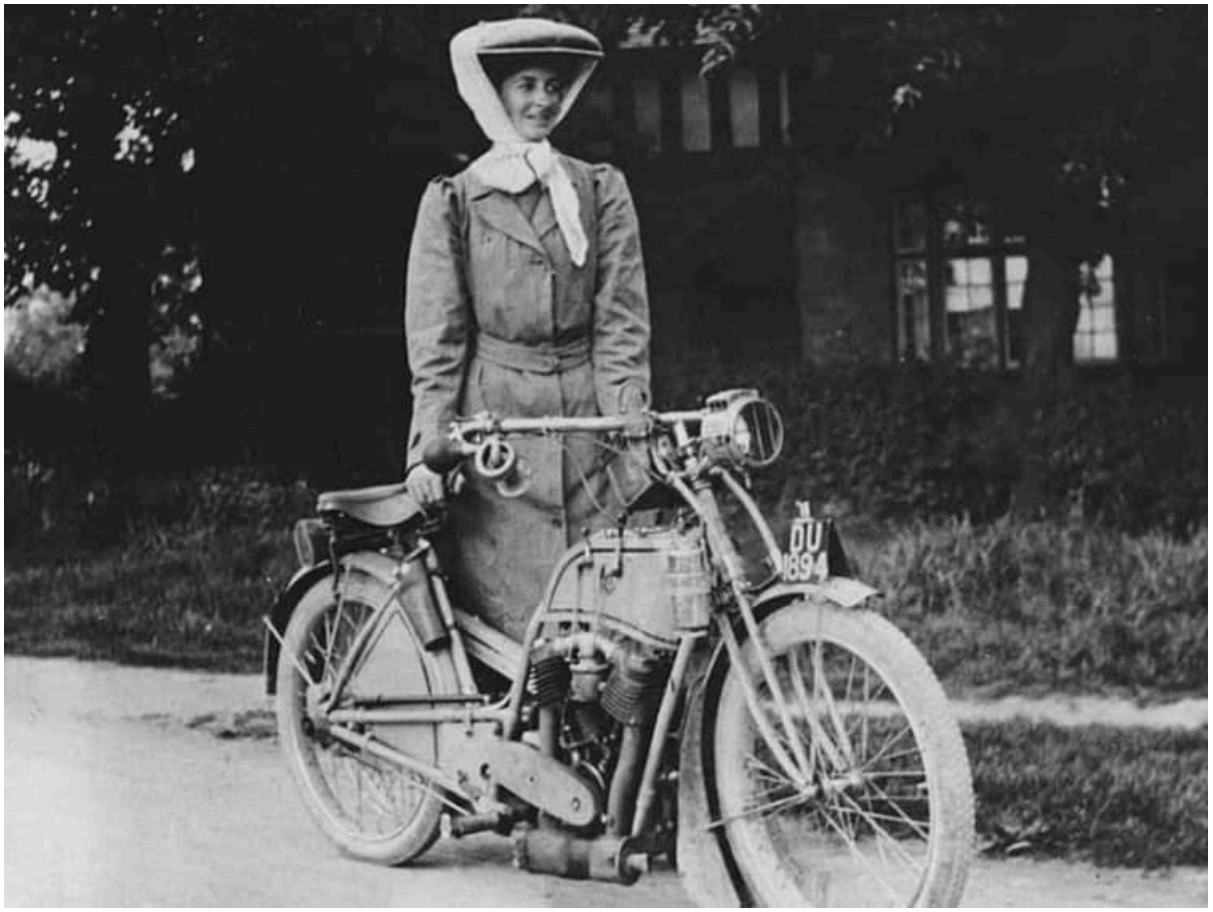


Of the 17 one-lungers that started the □ðrstTTeight□ðnished;RobertAyton □ðnishedinseventh place on a bike he built himself with a 3½hpRileyengine.

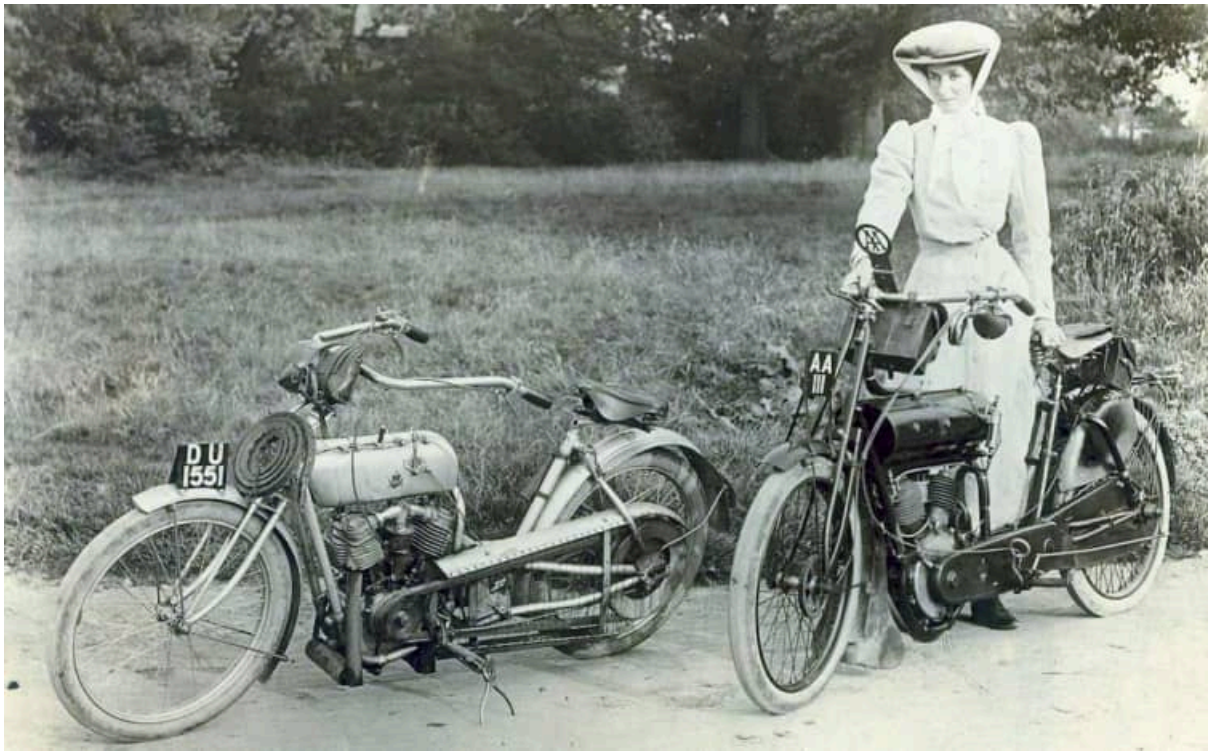
WITHINAfortnight of the TTFowlerand Marshall were wheel to wheel again, at the Coventry MCC's gymkhanawhere Marshall did well at the jousting for rings competition, making the fastest run but missing 11 out of 24 rings. Muriel Hind also competed in the joust and was widely praised for her control of a brand new 5hp Rex.And the Lytham motor gymkhana featured an event that would be a favourite at motor cycle rallies over the years: a "tortoise race for motor bicycles".



Muriel Hind was among the competitors at the Coventry MC gymkhana, tilting for rings on her 5hp Rex.



Here's the redoubtable Mrs Hind with her ladies' model V-twin—she was a demonstrator, works and test rider for Rex.



…andhere she is with another Rexand a Roc, also made to her order; Rocs were assembled at the Rexworks.

IMPORTS,PRIMARILYFROMFrance, Belgium and Germany, rose to 1,770 from 1,755 in 1906 and 1,700 in 1905. Exports also rose, to 799 from 739 in 1906 and 688 in 1905. Registrations fell from 11,039 in 1906 to 8,142; total registrations totalled 53,877 at year's end. Britain's leading export markets were South Africa, Australia (which imposed a 30% import duty on motor cycles) 'British India' and New Zealand. Triumphs were appearing on American roads but they were produced in Chicago.

THEREWERE19,573motor cycles in Germany, up 3,800 on 1906. In the □ðrsthalfof the year Germany exported 1,585 machines and imported only 261. Its four biggest markets were Holland, Britain, Denmark and Russia. NSUsent a director to the USAto set up an agency in New York.

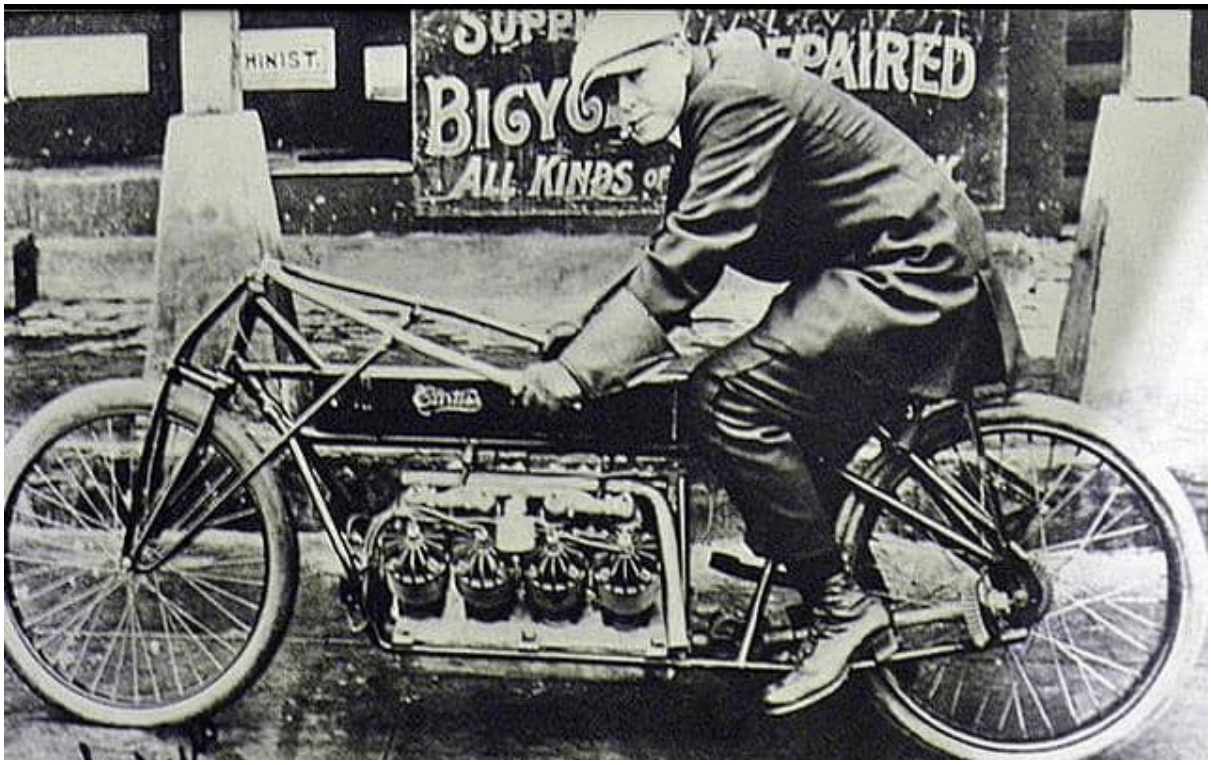
THEUK,WHICH now boasted well over 50,000 motor cycles, started the yearwith more than 80 bike clubs. Advertisingfor members, the Birmingham MCC stressed that it "has no riding season, but is composed of all-weather riders, and runs are arrangedthroughout the year."

THEGENERALSteamNavigation Co oīered a twice-weekly service to Ostend from St Katherine's Bridge, near Tower Bridge, to Ostend. A □ðrst-classticket costs 10s 6d, plus □ðvebob for your bike.

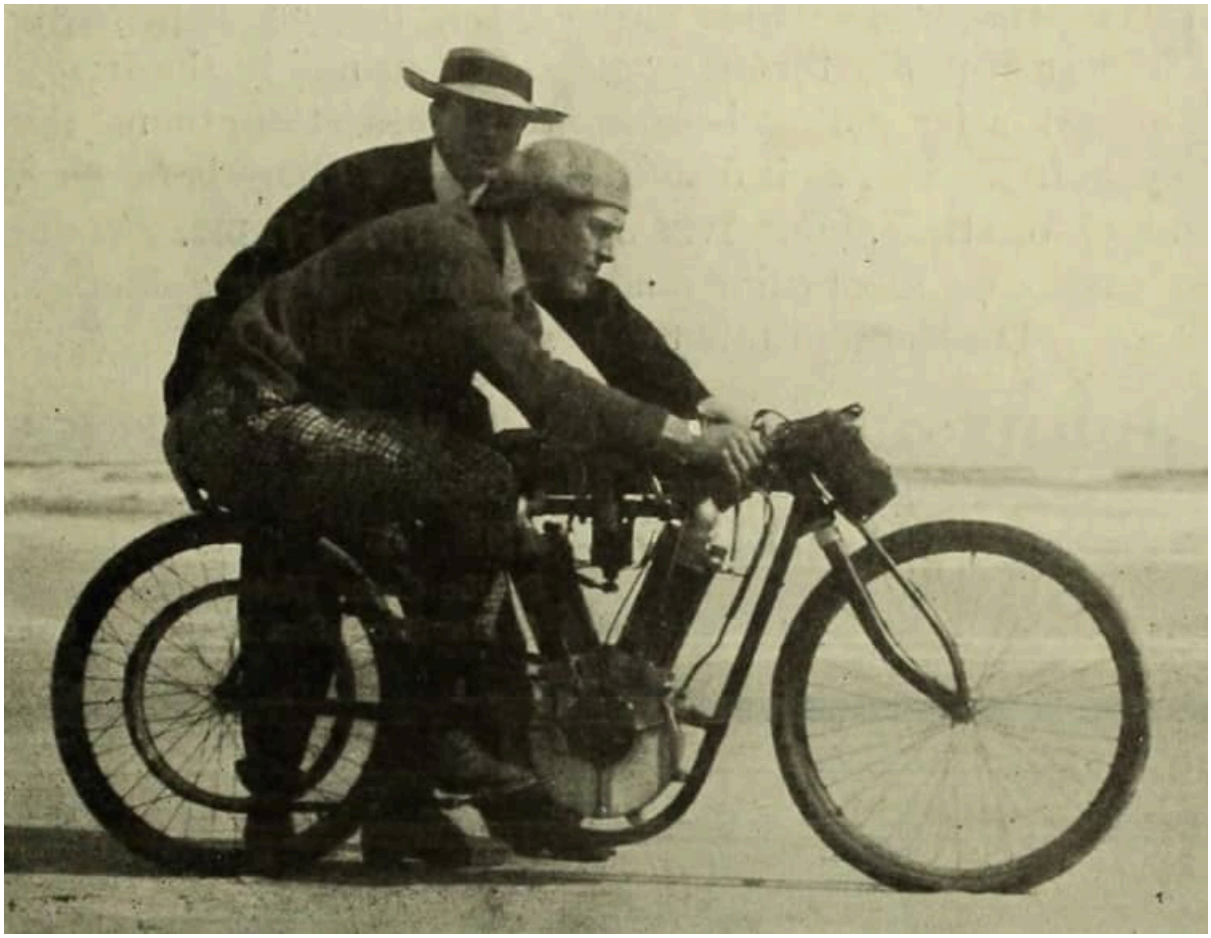
"A CORRESPONDENTNOTIFIESusofatrap outside Colchester a quarter of a mile in length. The trapper sits in a small shed which is □ðttedwithawindow and a slab or desk to write upon. This trap is working in the direction from Ipswich to Colchester. Another constable is allowed to make use of the vicar's gardenfor the purpose of hiding, and stops motorists travelling in the other direction."

RUSHWORTHBROSofHalifax launched a 503cc ohv single rated at 2.5hp, It had a 60in wheelbase and "a belt ten feet in length, which should conduce to smooth running".

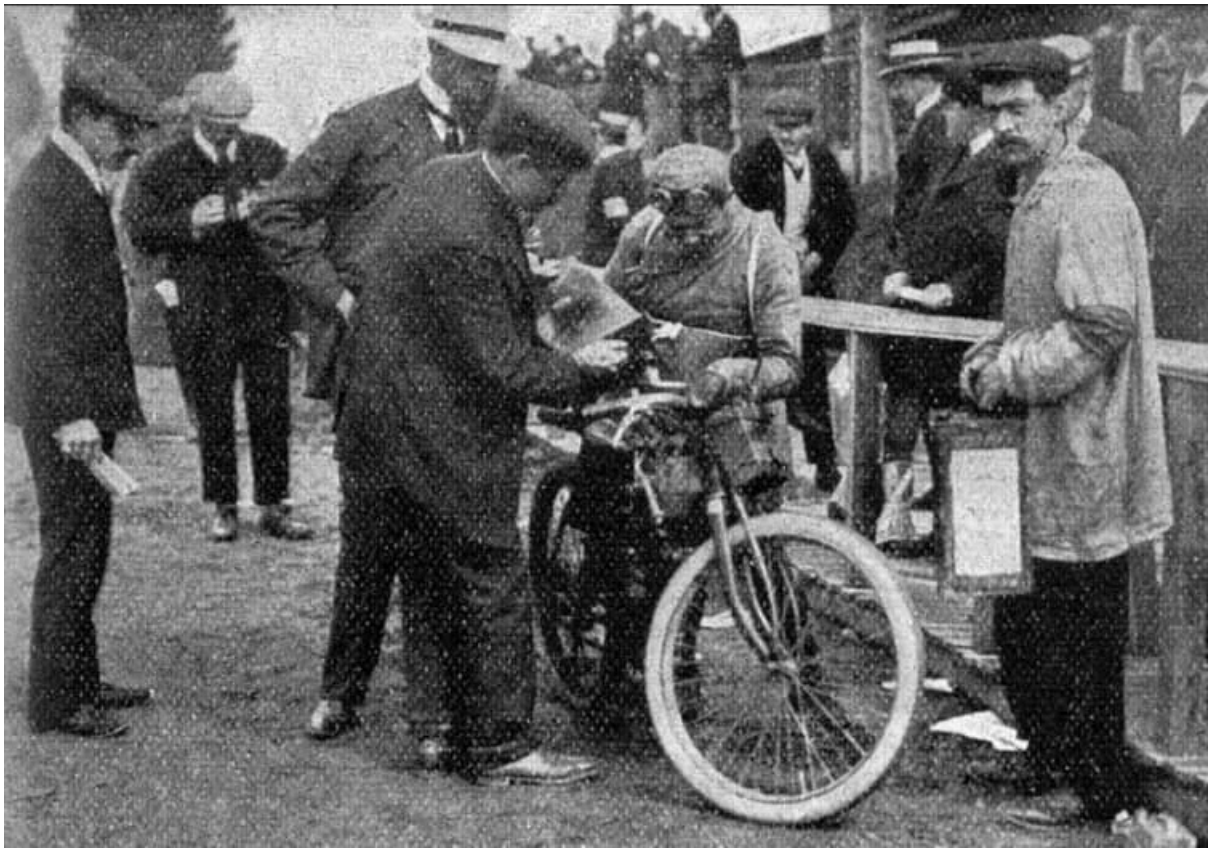
IN THEUSABicycling World reported: “George H Curtiss, of Hammondsport, NY, and William H Wray Jnr,of Brooklyn, NY, the two motorcyclists who participated [in the Florida speed carnival on the Ormond-Daytona beach] covered themselves with glory…Ina mile race in which they were the only competitors, Curtiss beat Wray by about three lengths in the record time of 46.4sec…however,Wraymadean oīicial trial for the record and got it, doing the mile in 44.4sec—about80.5mph…Curtisrode the double-cylinder motor bicycle of his own well known manufacturer; it is nominally rated at 5hp but with 3.25×3.25in cylinders it develops more…Wray rode a double-cylinder Peugeotracer which has just been brought over from France and which is rated at 14hp.” Curtiss also ðeldedabikepowered by his 4,000cc V8 aircraft engine. Sadly, “The latter was put out of business by a break in the transmission before it had a chance to distinguish itself and so remains merely an interesting exhibit as being the most powerful motorcycle ever put together, although in a private trial it is said to have dome a sensational mile in 26.4sec, but private trials ‘don’t go’ and the big machine is way over weight anyway.”



Glenn Curtis developed a 40hp V8 to power his aircraft but shoe-horned it into a bike frame for the Florida speed carnival. Legendspersist that he rode it at a mind-boggling 137mph; sadly contemporary reports reveal he rode a V-twin in the event–but he did set a record and his V8 was, unoīicially at least, the fastest vehicle on the planet.



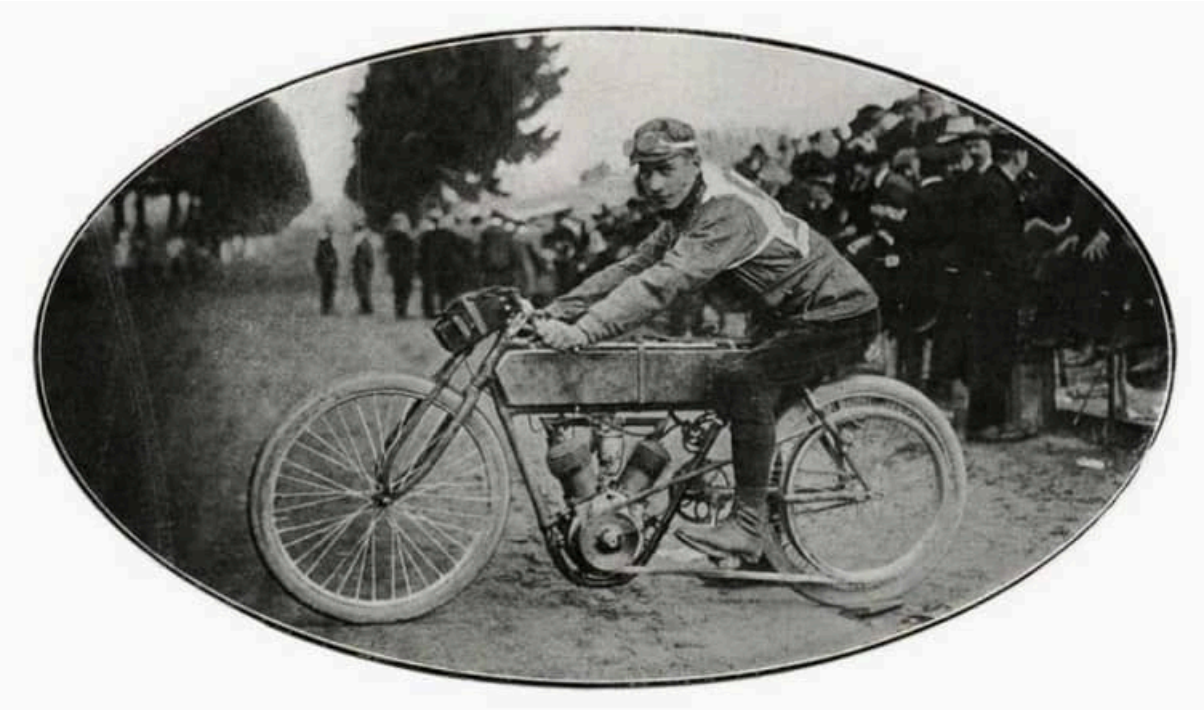
Wray's imported Peugeot works racer was probably the bike Giuppone had ridden to victory the previous year in Dourdan at 128.5km/h.



…andhere's Giuppone in the pits en route to winning the ⅓-litre class in the Circuit d'Ardennes.

TheMont VentouxHill Climb dated back to 1902 and was primarily for cars; the 13.4-mile

course climbed 5,289 feet. These heroes on a Motosacoche Regence-Buchet are clearly giving it their all.

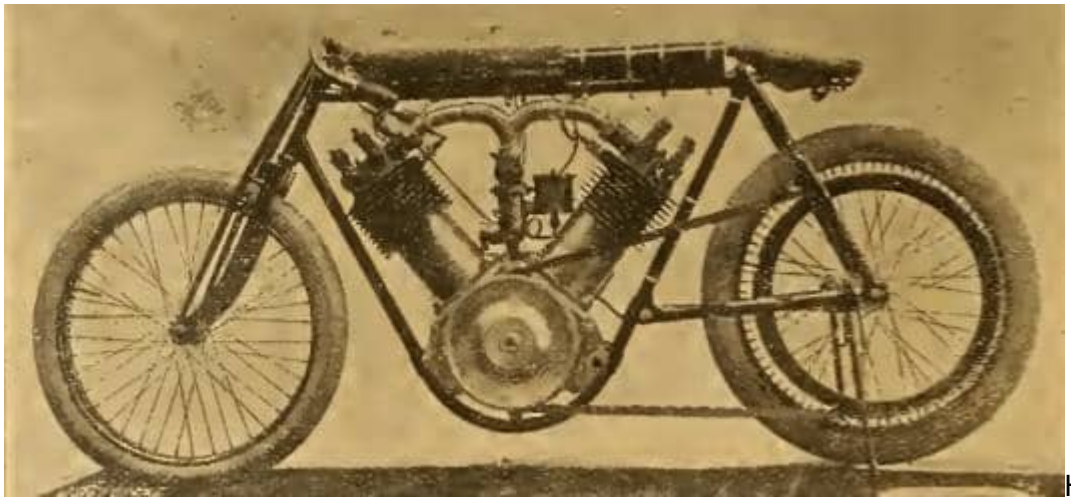


Contant won the open class in Ardennes.

DOUGLAS ENGINEERING, which made castings for Light Motors, took over the manufacturing rights of the Fairy □ðat-twin when Light Motors went out of business.

JAP PRODUCED an advanced in-line triple.

MATCHLESS LAUNCHED a (JAP) V-twin sporting swinging-arm rear suspension. “Chatting the other day with CR Collier, the famous record breaker, our racing noter found the Plumstead crack more enthusiastic than ever. Said he: “I intend doing more racing and record breaking than ever. I am having a special machine built for the races to be held at Weybridge, also one of 18hp for world’s records. As to the International Cup, I think I have □ðnished with that, but I shall be seen in the Motor Cycle Tourist Trophy Race in the Isle of Man, and when I get my path racer tuned up to concert pitch I think I’ll pop over to Paris and see what I can do on the fast tracks there. I mean to commence early this season, and, as you know, it is my ambition to regain the British hour record. I have been unlucky or it would have stood to my credit before now. Anyway, look out for 56 or 58 miles in the hour before long at Canning Town.”

 Having won the single-cylinder TTMatchless built a lightweight racer around a 20hp JAPtwin. Not for the faint-hearted.

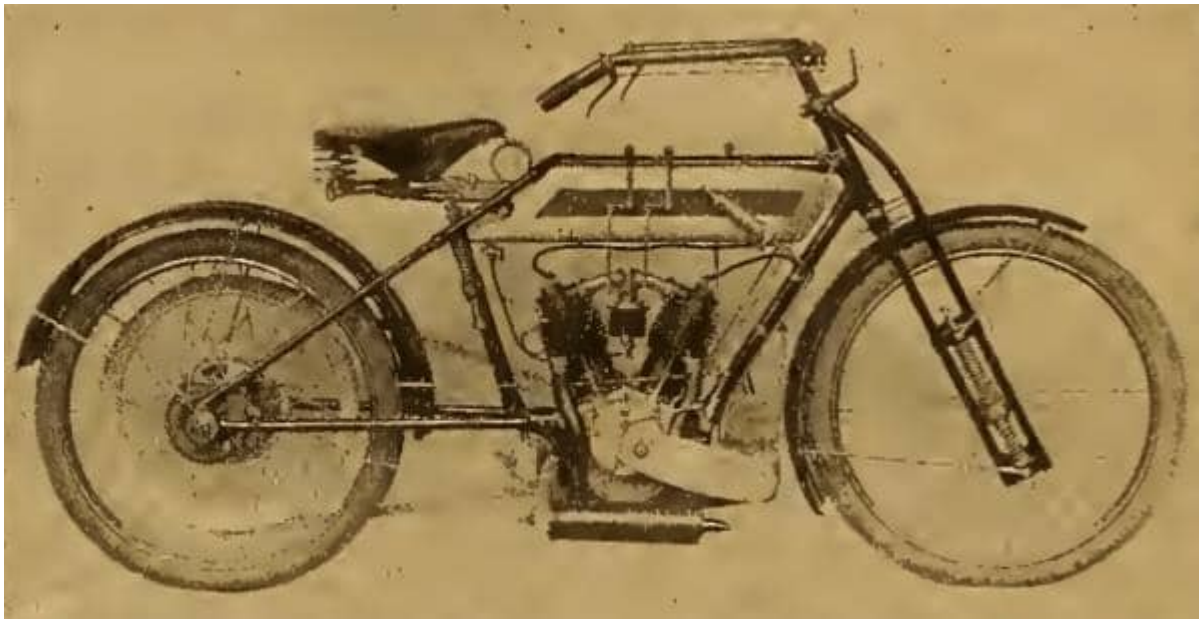
SWEDESVENWingqvistof SKFpatented a multi-row self-aligning radial ball bearing.

THEFIRSTAApatrolmen rode bicycles. TheAutomobile Club of Great Britain and Ireland was granted a royal warrant by Edward VII and became the RoyalAutomobile Club.

BRITISHRIDERSventuringoverthe Channel were warned that 'motor spirit' sur le continent was variously sold as Motocarline, Motricine, Moto Naphtha, Essence,Benzin, Moto, BenzoMoteur, Luciline and Automobiline. Whatever the name, it was far more expensivethan in Blighty.

BROADWAYANDCroftlaunched at clip-on two-stroke engine; rather than a throttle and choke revs were controlled by a compression release valve.

ASAN ALTERNATIVEtopedalling or bumpstarting, Rex □ðtteditsde Luxetwin with a starting handle. "The rider," it announced, "can then sit down on the saddle, and with one foot resting on the ground let in the clutch by means of a lever on the footrest, when the machine will move away and gradually pick up speed." A 'twin tyre' was □ðttedwhichwasclaimed to eliminate skids.

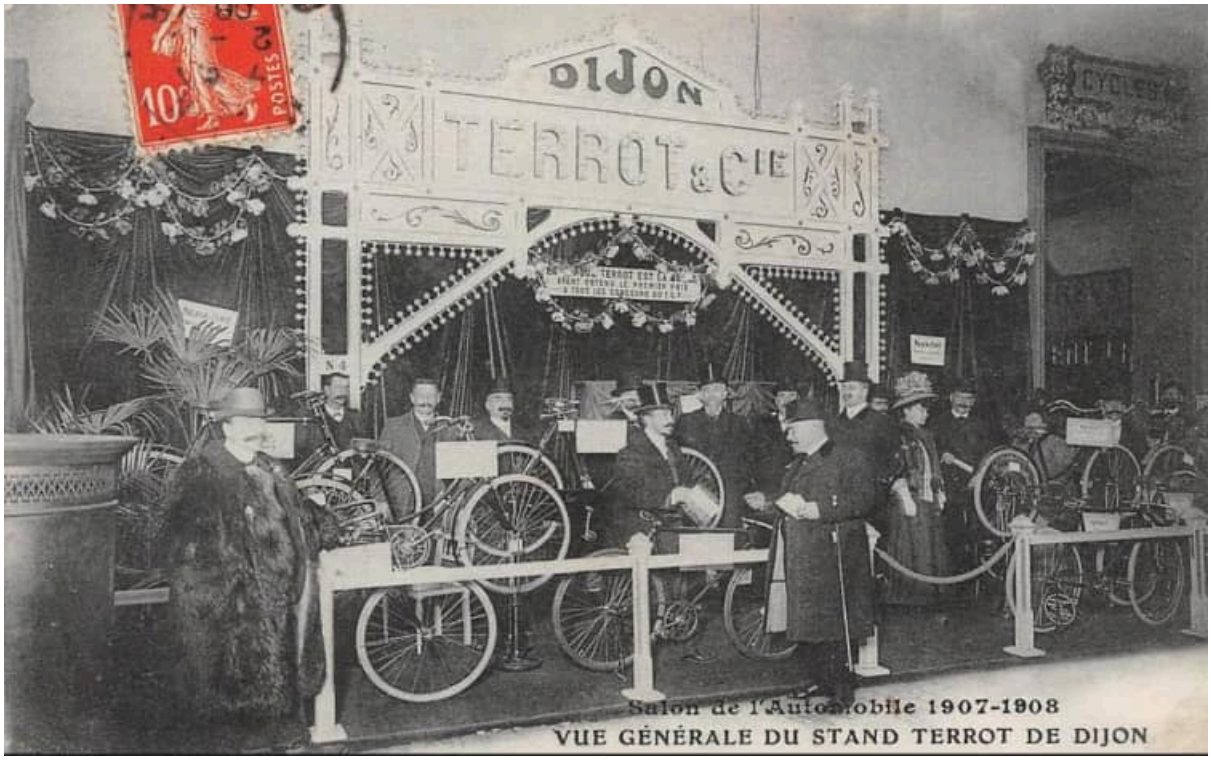


This version of the 5½hp Rextwin had a conventional single rear tyre but did feature a sprung seat pillar and plunger-style sprung forks.

RUSSIASTAGEDits □ðrstmotorshow, in St Petersburg. Motor cycle exhibitors included FN, NSU and Sarolea. A Wanderer was the only bike to □ðnisharacefrom Moscow to St Petersburg without damage.

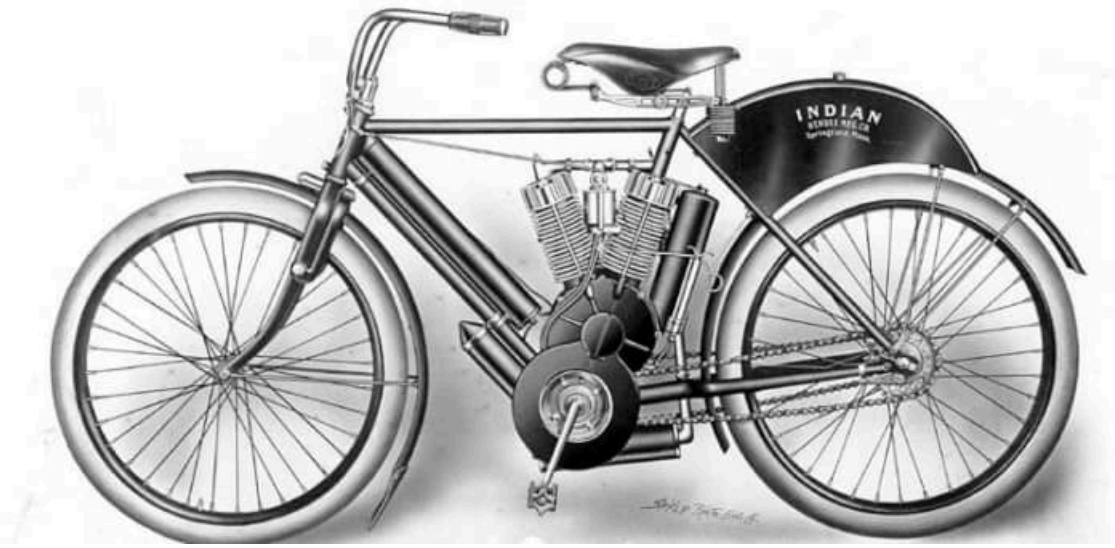
THEDUBLINMotor Show attracted exhibits from Minerva, NSU, Rex, Singer, Triumph and the North British Rubber Co.

MANUFACTURERSATtheCrystal Palace Show included FN, NSU, AW Wall (Roc), Rip, Vindec, Bat, Laurin & Klement, Lagonda and Riley. Shows were also staged in Edinburgh, Liverpool, Newcastle, York, Manchester and Birmingham.



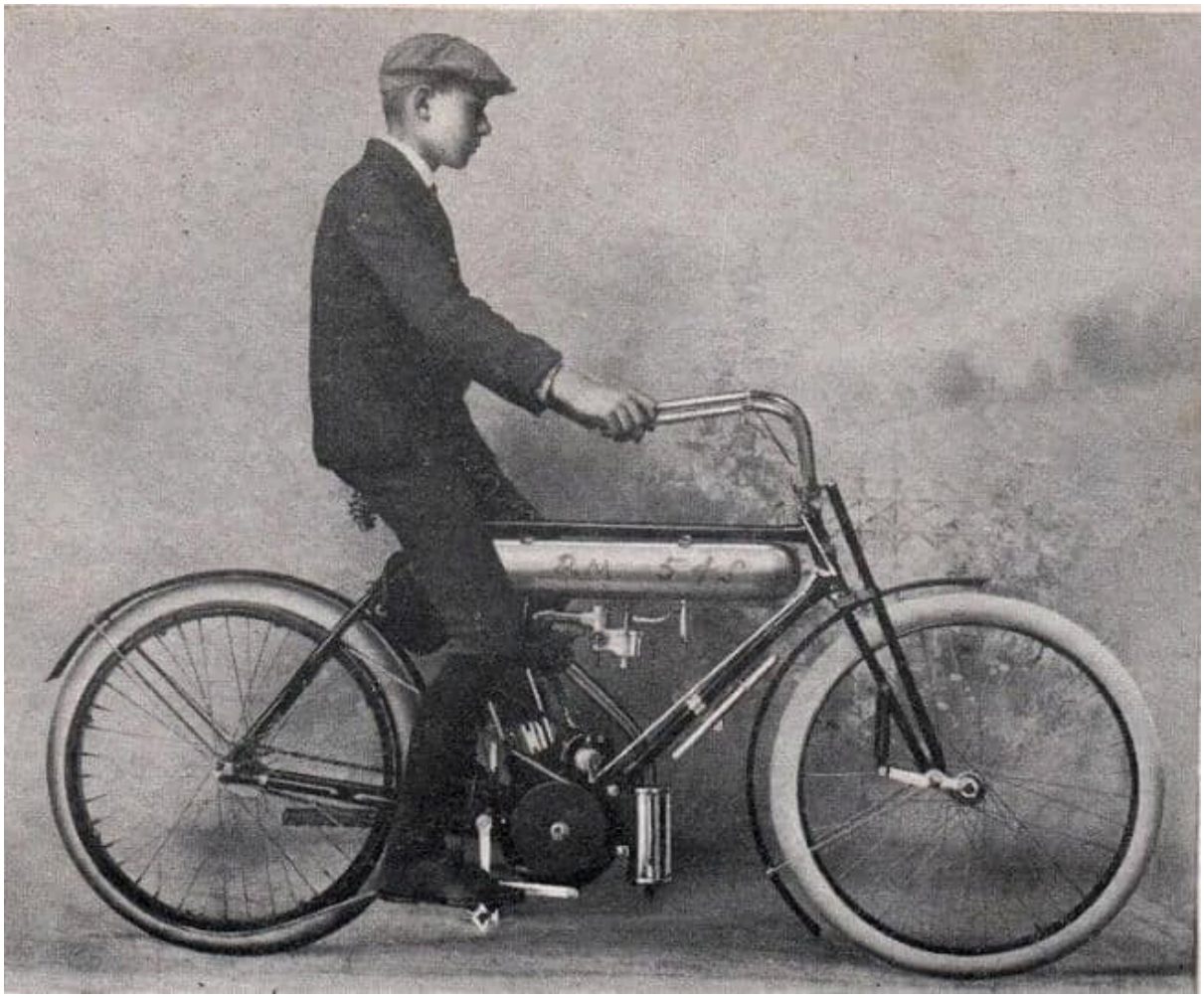
French shows clearly had a Belle Époque style all their own, as did their visitors.

THEREWERE17bikes at the American Motor Show in New York's Grand Central Palace: 13 one-lungers, three twins and an FN in-line four. TheBlue 'Un rather sniīily reported: "The principal makers, the Hendee Mfg Co, appear to have altered practically every detail on the Indian motor cycle, which has previously been referred to in American papers as far in advance of English machines. Their experiments with steel cylinders, known in England to be wrong for the past □ðve or six years, have, of course, proved a failure, and they have adopted cast-iron cylinders, and nearly all other details which go to make up a perfect engine have been changed, so it would appear that the much vaunted pride of Yankeelandhas not been quite the success its adherents try to make out."



Emblem was a new name on American streets when this smartly turned out enthusiast was pictured on his 4hp one-lunger. Its 7hp V-twin stablemate had respectable sporting success against the established Indians and Harleys, setting a good number of long-distance road and track records. TheNew York marque would survive to the mid-'20s…

…andhere's the 1907 edition of the bikini-clad lovelys who would adorn bike ads 60 years later.



"C Walter Metz on his Marsh-Metz motor cycle, who, on Labor Day, in the NAM Reliability Run on the road, covered 300 miles in 14hr 32min [just under 21mph], which is the world's record."

FROMAreport on the motor cycling scene in the British Central Africa Protectorate: “While we cannot, of course, boast of macadamised roads, as in England, we have at least certain advantages in having no speed limits, no police traps, no anti-motor brigade, no dogs, no horses, and no punctures. The latter immunity is due to the fact that the natives always walk in single □ðle along the middle of the road, with the consequence that there is generally a good hard track in the centre, and as the native is, of course, bare-footed he is naturally extremely careful to remove anything likely to puncture his foot…Only one native has yet had the distinction of being run over, and the reason of this mishap was because the man was a deaf mute… Fortunately, no one was seriously hurt. The look of blank bewilderment on the deaf mute’s face was, I am told, a thing to remember!”

I’m guessing this snap was taken in France (that copper seems to be holding a Gaulois which is a dead giveaway). Just an everyday scene of a chap tinkering with his bike as we still do.

BACK IN BLIGHTY, a rider wrote: “I have motor cycled for four years; I am very deaf, and cannot hear anything when riding, except the engine; I have never had any trouble or bother through my deafness, I ride hard and have no objection to race or ride in a crowd. Once or twice I have been passed by fast cars, when I seem to feel them coming, but the correct thing to do (if being passed makes you nervous) is to ride faster than others.”

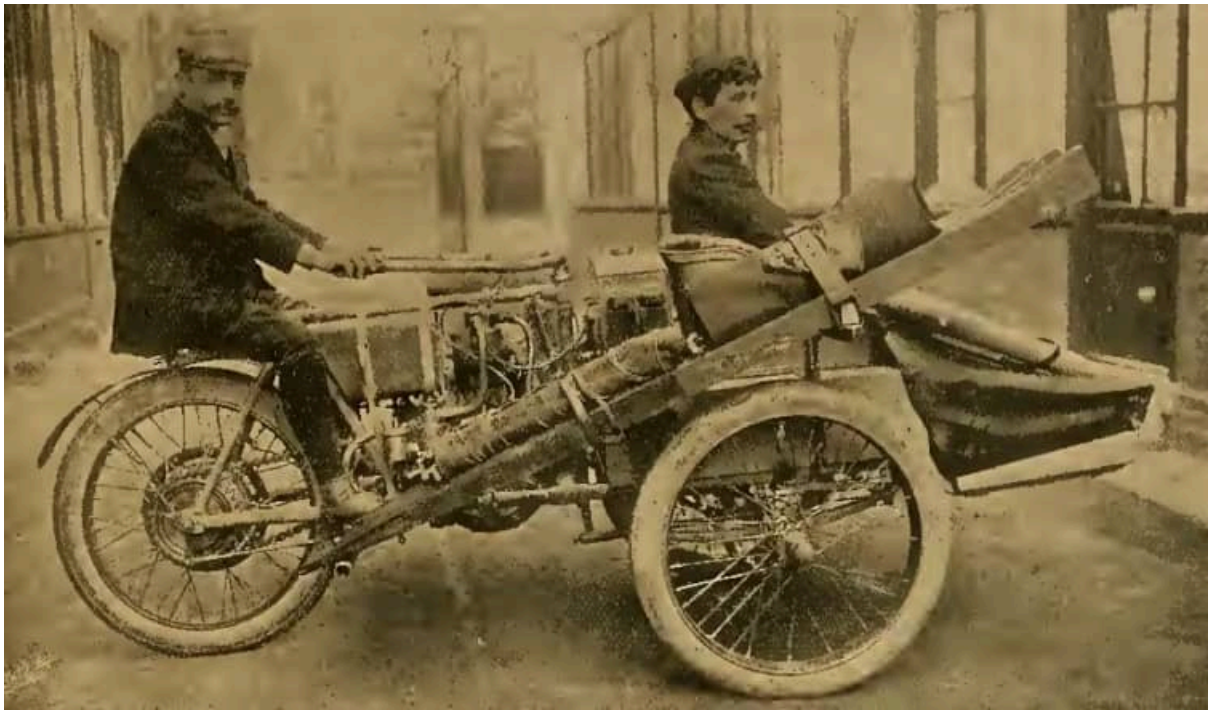
A SPORTING RIDER wrote: “I am sure there must be hundreds of amateurs like myself who long to enter for speed contests, but are debarred by the knowledge that trade riders with specially tuned up machines will have it all their own way. I am sure the advertisement aīorded to the makers would amply repay them for oīering a prize for these events.” Another enthusiast opined: “Amateurs have no chance against trade riders, who have a choice of engines, and every facility for adjusting them, and who, I also notice, generally travel by train with the machine to the scene of the contest.”

Pictured at the start of the ACU's sixth annual race meeting are Harry and Charley Collier (Matchless), F Hulbert (Triumph) and J Marshall (Triumph).

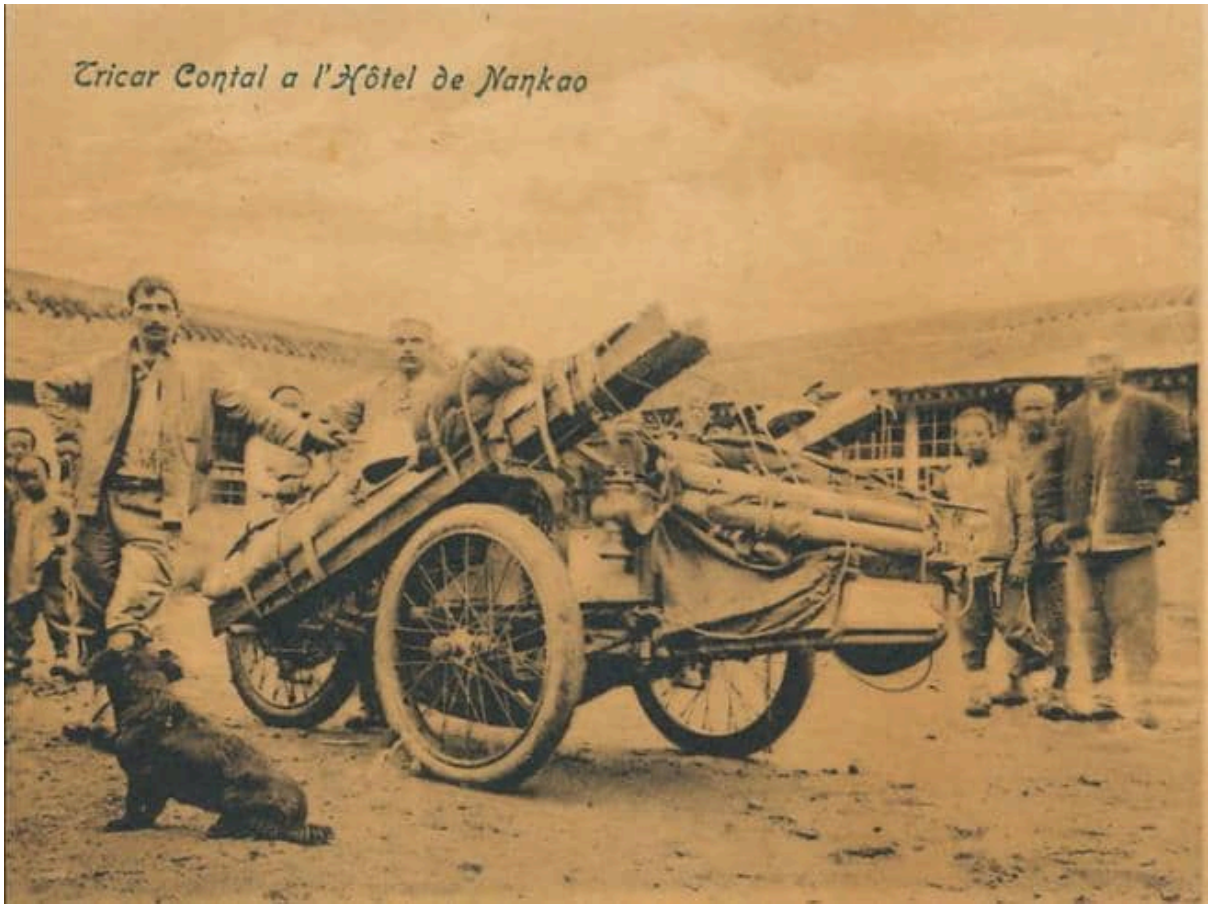
HARRISSONS and Co of Birmingham came up with plunger rear springing that could be bolted or brazed to any motor cycle frame.

FROM A contemporary description of The Novice: "He only comes out in □ðne weather…you will sooner or later see a youth whose costume attracts attention—a cap with a great bulge astern with a long peak forrard, the largest sort of goggles (vide advertisements 'Gordon-Bennett' or 'Paris-Vienna'), a pair of fur gauntlets in spite of the sun, waterproof knee apron, shaped gaiters of calf, and natty reefer with astrakhan collar. The motor cycle he bestrides will be brand new, gleaming with polish, and be □ðtted with a bulbous Bleriot lamp and a huge double-twist horn. So far this species has a distinct resemblance to another the habits of which are very diīerent, to wit, the 'dude'."

THE PARIS NEWSPAPER Le Matin issued a challenge: "Is there anyone who will undertake to travel [8,750 miles] from Peking to Paris?" The prize was a magnum of champagne which was won by Prince Scipione Borghese in a 7½-litre Italia. But spare a thought for Auguste Pons, whose Contal tricar ("mototri" en Francais) was deserted by the rest of the □ðeld. In an interview with La Vie au Grand Air Pons reported that he and his co-driver Oscar Foucault lost their way and, although the competitors had promised to travel in a group to oīer mutual support, they were left to their fate: "For two days, we had lost all contact with our companions. They forgot their promises. And, during this time, did they not suspect that we were alone, lost in the desert without shelter and without food?…the most basic humanity would command them to come to our rescue…I admit that it is a little humiliating to admit that we received help and assistance from savage tribes, while the so-called civilised people left us in the desert." The pair nearly died of thirst and had to trek many miles through the desert before being discovered by Mongol nomads. "All our equipment, spare parts, camping gear, had to stay with our saviours with the machine. It was impossible to take anything with us since we had to walk." Undeterred, Pons announced plans to enter Le Matin's next whacky race: from Paris to Paris via Dover, Liverpool, New York, Chicago, Alaska, Siberia, and Moscow.



Pons and Foucault had a nightmarish time on the rally.



As far as anyone knows the Contal is still somewhere in the Gobi Desert.

These pictures in La Vie au Grand Air indicate how much help Pons received from “savage tribes”. (Right) The original caption translates as: “Pons, abandoned by his companions, abandons his mototri.”

PS: THE PEKING-PARIS RALLY was revived in 1990, 1997, 2007 (to mark the centenary 126 veteran, vintage, and classic cars took part, the oldest being a 1903 Mercedes; 106 of them completed the 7,855 miles in 36 days) and 2013, when entrants included Belgian architect Anton Gonnissen and his wife in their 1950 Bentley. Inspired by Pons’ story Gonnissen tracked down a 1906 Contal in the Le Mans 24 Hours Museum and built a replica, but wisely beefed up the chassis and upped the power from 9hp to 45hp. He recruited Herman Gelan as co-driver and entered the 2019 Peking-Paris Rally. A snapped axle was welded up with some scrap iron in Mongolia, possibly by descendants of the nomads who’d rescued Pons in 1907. Gonnissen and Gelan completed the run that Pons and Foucault had started, passing through Russia, Kazakhstan, Finland, Estonia, Latvia, Poland and Germany to Paris. Gonnissen said: “I really think—it sounds silly—but, 1907, □ðveteamssetout to do something incredible. Four of them arrive. One gets stuck in the Gobi Desert, goes back home. Nobody talks about him anymore. He gets forgotten. Finished. I pick it up 112 years later. I think that the gold medal is his. Or at least his and mine. So what I will do, I’ll go back to Paris and put the medal on his grave, making it a happy ending.” Nice one, Anton.

Gonnissen and Gelan wrestle with the replica of the 1907 Contal.

For less adventurous riders Bruneau oīered this tidy 326cc forecar.

TO HELP motor cyclists deal with aggressive dogs the Continental Tyre Co of Clerkenwell Road, London EC, introduced the 'Sjambok', a rubber whip that clipped to the handlebars. "It will not injure the dog permanently," Continental promised, "but can be relied upon to administer the necessary rebuke."

BILLY WRAY Jnr of Brooklyn, New York imported a 14hp Peugeot racer and covered a mile at an average 81.08mph to set a US record.

FEELING COLD? Ixion, as always, had the answer…"I do not know whether it is as cold all over the kingdom as it has lately been in the neighbourhood of Ixion Cottage, but the following represents the additions to ordinary attire which I □ðnd essential to keeping warm on motor cycles: Two pairs of socks, one woollen, one silken; thick winter boots, with snow boots over them; silk gloves, with woollen gloves over them, the latter with leather palms and □ðnger facings; cardigan jacket under a leather waistcoat; leather breeches, lined Jaeger; and short waterproof coat overall. I do not care for either ear protectors or a deerstalker cap, both of which tend to produce deafness; but the best way to keep the ears warm and retain a perfect sense of hearing was found when Mrs. Ixion devised two little cloth-rolls, forming the sides of a loop, completed by a broad elastic. These □ðt closely to the □ðesh of the cheeks in front of the ears, and all the cold head draughts shoot over them, and miss one's ears altogether. They can hardly be called pretty, but who cares for that?

DESCRIBED AS the largest meeting of motor cyclists to date, an inter-club rally in Richmond, Yorks, attracted contingents from Newcastle (30), Sunderland (25), Hartlepool (25), Middlesborough (25), Leeds (30) and Bradford (16).

The Richmond meeting became an annual event.

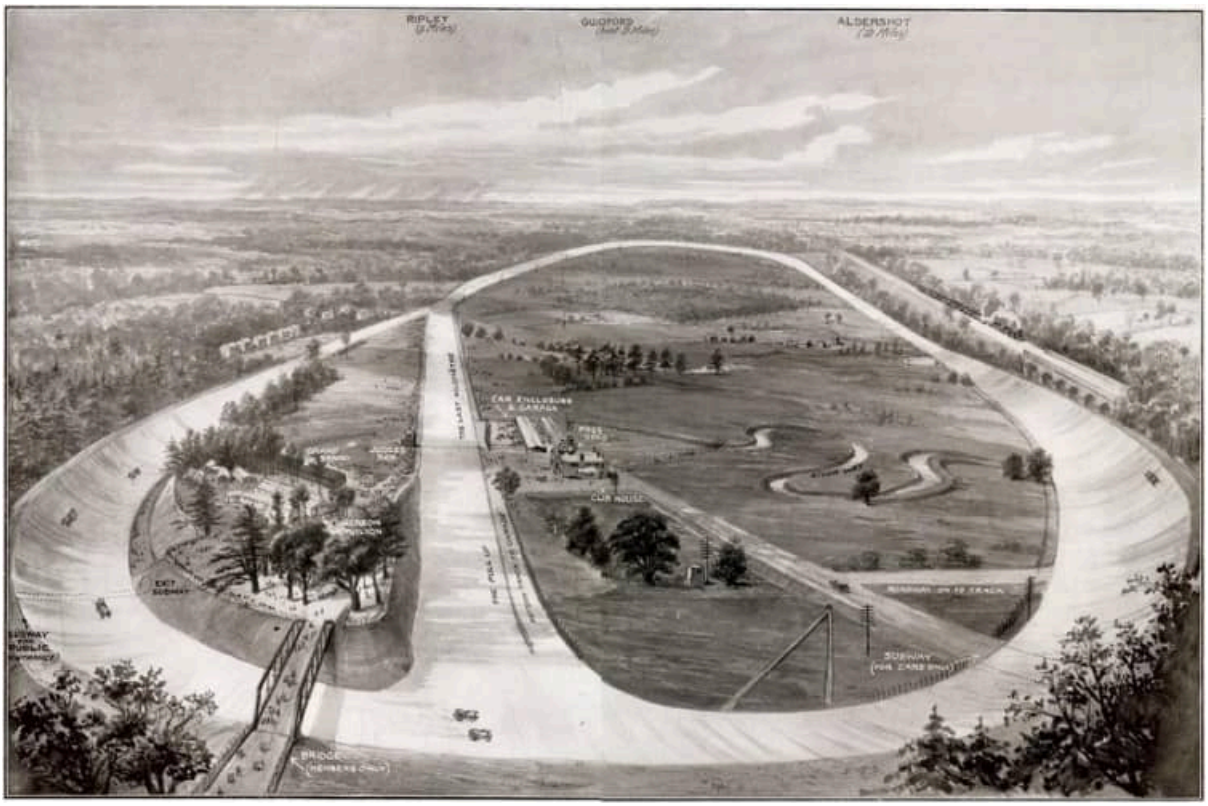
MEANWHILE IN THE LEAFY lanes of Richmond, Surrey a trike rider was summoned for "driving in a manner dangerous to the public" after he ran into a copper who was in conversation with a lady and gent at the roadside, throwing the oīicer "violently against the lady". The triker apologised to the court, explained he was "trying to get between the lady and gentleman" and oīered to pay for damage to the cop's uniform. He must have strung a good yarn because the magistrate dismissed the case.

THE BOHEMIAN MC, newly formed to promote "racing on high-speed tracks", hosted a meeting at the Canning Town track in West Ham. Highlight of the day was a series of matches (at one, three and □ðvemiles) between English champion Charlie Collier (Matchless-JAP) and his Irish counterpart CB Franklin (JAP-JAP). Collier romped home in all three races.

FROM A PREVIEW OF BROOKLANDS, the world's □ðrstman-made motor racing circuit: "What a picture is presented to the imagination at the mere mention of the name of this motodrome, where the pick of the world's racing motorists are to compete…Nothing approaching it…has ever before been attempted. For comparison with it one can only suggest the classic Olympia when Greece was the athletic centre of the world. It is expected that thousands will □ðocktothe Weybridge track to witness such motor racing as the world has never seen before. The specially prepared surface of cement and the banking will allow of speeds hitherto impossible. Motor cycle racing men will attend from all parts, and if sixty or more miles an hour have been found possible on four laps to the mile, what may we hope to see done on the long straights and sweeping bends at Brooklands? No waiting or pocketing at the corners, but a ding-dong from start to □ðnish. The track will furnish an opportunity to show the world what motor cycles can do in the way of speed when the conditions are favourable. Six motor cyclists could race alongside without danger…On Florida Beach, Curtis is reported to have attained a speed of 136.36 miles an hour. A beach track must be very holding compared with a top dressing of cement. What, then, is possible at Brooklands under favourable conditions?" It was designed by Colonel Holden who had built the □ðrst four-cylinder motorcycle in 1894 and was also intended to be a high-speed testing ground for British vehicles—rumour had it that the track was built to handle speeds up to 150mph.

Field of dreams…Brooklands would become a magnet for motor cycling sportsmen.

SOMEMOTORCYCLISTSwhoattended the □ðrstracesat Brooklands (for cars only, bikes weren't yet allowed to race on the new 2¾-mile circuit) found the sheer scale of the circuit robed the events of their excitement. And they were even less impressed by the catering: "Lunch—which we badly wanted—was a sad □ðasco.Wewereso hungry we missed a race to get a meal, and found 400 people struggling to be fed in a tent designed for □ðfty.Fiftyhungryindividuals were seated, casting □ðercelooksatthree weary waiters. Over each seated diner stood half a dozen determined individuals intent on his seat as soon as he should vacate it. Thewaiters were crazy with indecision. Consequently we foraged for dirty plates, knives, and forks, carved food for ourselves, and sat on the ground in a comer, using biscuit boxes for tables. We paid half a crown for this privilege, and escaped from the hungry crowd resolved to bring a picnic lunch on the occasion of our next visit."



Brooklands: the world's ðrstpurposebuilt race track.

Thecaption to this wonderfully whacky collage in the Parisian sports magazine La Vie au Grand Air doesn't really need to be translated: "L'accident D'Oliesagers:Une chute de motocyclette a 100 kilometres a l'heure." Theillustration is obviously staged but the crash was all too real. Oliesagers explained: "When racing against the French rider Cissac and the Swiss champion Bussac, through riding too close to the inside, I got my wheel oī the track, leavingthe banking. Knowingit was impossible to avoid a fall, I managedto reach the next banking, when I threw myself oī the machine and rolled down unhurt, the speed at the time being sixty-ðvemilesan hour." TheBelgian ace, who gloried in the nickname 'Le Demon Anversois', (Antwerp Demon) got away with it, unlike too many other board racers. We'll meet him again next yearwhen he was beating all-comers on an American tour and laid claim to the title 'motor cycle champion of the world'.

THEAUTO-CYCLEClubbecame the Auto-Cycle Union (ACU);it contributed a guinea to the Ripley Roadmenders' Fund, a guinea to the North Roadmenders' Fund, and a guinea to the Automobile Club Servants'Christmas Fund. Justbefore the club became a union it staged its □ðfthannualsix-days' trial. Riders followed a demanding circular route. Leaving London the □ðrst day's run took them east to King's Lynn and west to Coventry. Day two took them to Llangollen, day three to Aberystwyth, day four to Cardiī, day □ðvetoGloucesterand day six back to London—atotal of 1,002miles.

Triumph won the team prize at the ACCsix-days' trial.

THELACKof Tarmac didn't bother the hardy souls who entered the MCC's fourth London-Edinburgh run. This. despite the opening of the TTand Brooklands and the six-day trial, was described as the most popular event of the year. Severalthousand spectators waved the riders oī from Highgate at 10pm. The □ðrstcheckpointwas at Hat□ðeld;theBiggleswadecontrol was noted for "excellent coīee, Bovril, and ham sandwiches". Dawn broke soon after the □ðrstriders passed through Stamford (two local lads persuaded the local council to relight the streetlights to give the riders an easier passagethrough the town); breakfast was supplied at the Clinton Arms, Newark courtesy of Captain L'Estrangeand BH Davies (yes, of course Ixion was at the heart of the action). Lunch was on oīer at Newcastle (alongwith the worst traīic jams of the event); 39 of 59 starters signed in within the time limit at the Grand Hotel, Edinburgh. All of the 15 Triumphs that started made it to Edinburgh as did eight of nine Vindec starters. Four heroes made the return run against the clock to compete for the Schulte Cup, donated by Triumph's boss—funnily enough none were on Triumphs. Thegold medal presented by the Auto Cycle Club for the best performance went to SGFrost (4½hp Minerva twin).

Leeds MCC members manned the Wetherby control during the London-Edinburgh run.

“THE OFFICIALSOFTHEMiddlesborough &DMCC have arranged for members to purchase petrol at a special price under contract. Coupons enabling members to get two-gallon tins at a special price are issued at 2d each.”

CHERISHEDNUMBERplatesare not a recent frippery. An enthusiast discovered that low registration numbers could be obtained in County Roscommon, Ireland—he acquired DI 35. Having just been incorporated as a borough Smethwick was also oīering low registration numbers; one rider snapped up HA 20.

THECOMITYChemical Co of Birmingham marketed a perfume to be mixed with petrol and make bike exhausts smell sweeter.

THECLEVELANDChemical Works at Middlesbrough was selling benzole at half the price of petrol which was said to oīer improved consumption and more power.

THENEW YORKand Brooklyn MCCs teamed up to □ðeld76competitors in a 116-miles reliability run. It was the biggest motor cycle event yet held in the USA.

The New York and Brooklyn MCs teamed up for a run.

THEFIRSTCLUBrun was held in Japan. A correspondent reported: “Motor bicycles □ðitaboutthe country in everydirection.”

ILLEGAL6MPHspeed limit signs appeared in Warwick and Milbourne Port, Somerset.

TWONEWYork bike cops were given medals by the Automobile Club of America for “bravery in stopping by means of drawn revolvers a car which was travelling at over 50mph in the city”. The driver was □ðnedtheequivalent of £20.

JS Harwood and RGMundy, both on 3½hp Triumphs, both won gold medals in the ACC 24-hour run from London to Plymouth and back.

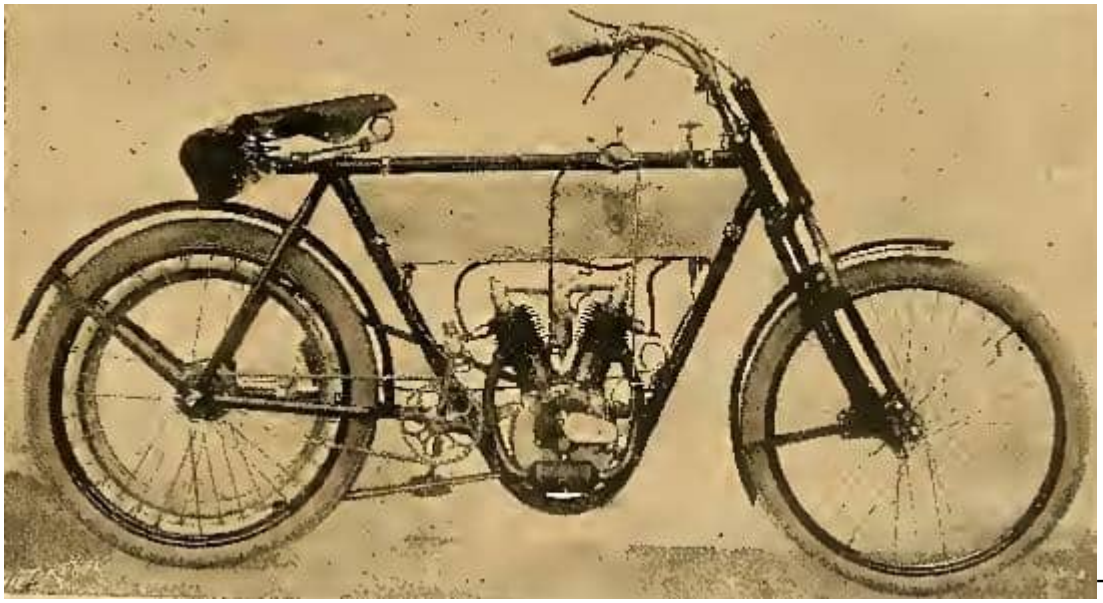
George Brough, on one of the Broughs his dad made, □ðnishedtheLondon-Plymouth-Londonrun 10 minutes outside the time limit.

A HANDYget-you-home tip: “When two motor cyclists are travelling in company, on machines with battery ignition, and one battery fails, it is useful to remember following: Adjust the points of the sparking plug close together, disconnect the bridge of the one battery and connect one cell to each machine with a suīicient length of bell wire to allow for a little diīerence in speed. By this means it is possible to travel a considerable distance without pedalling or searching for

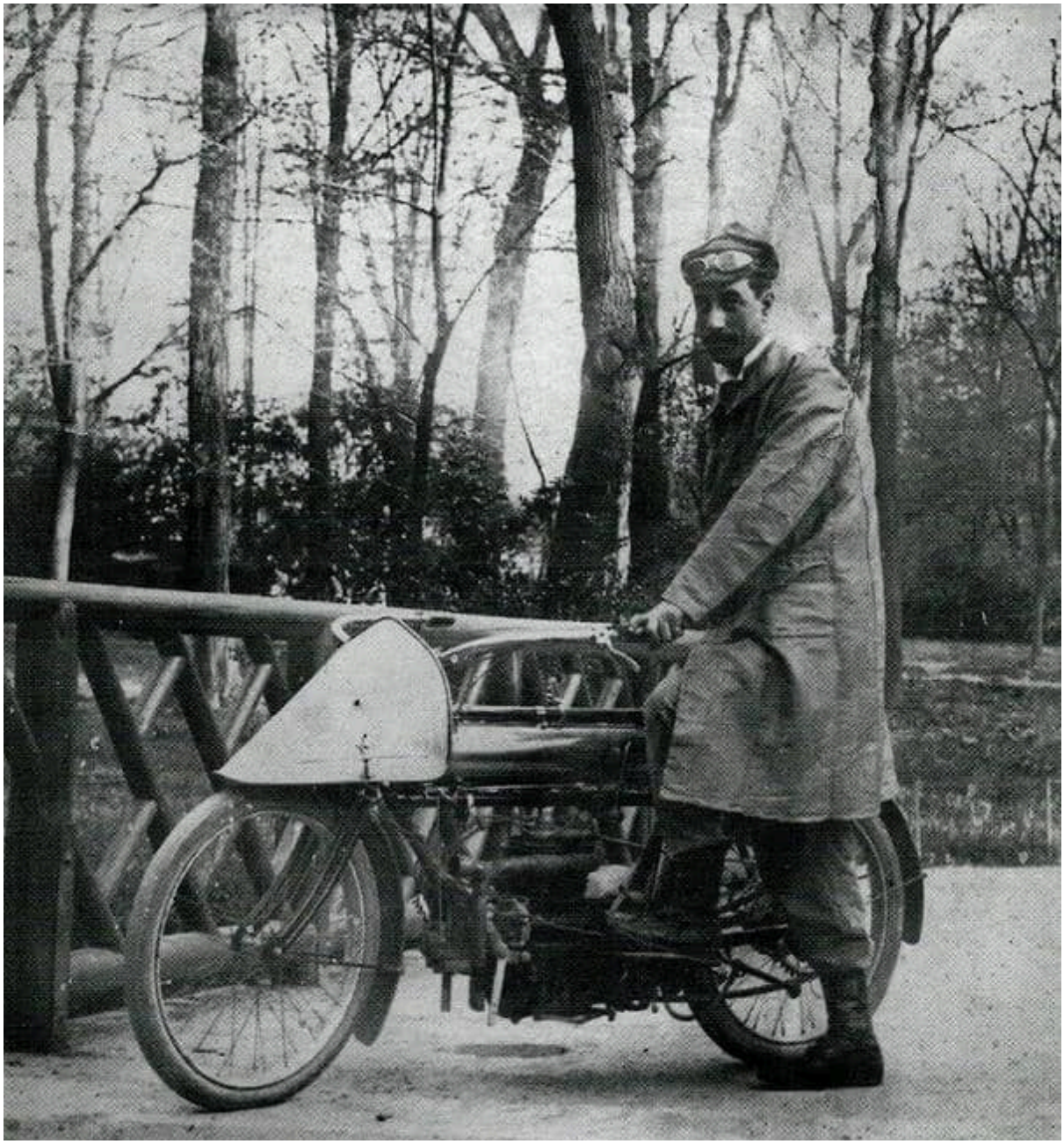
another battery. Correspondents, Messrs B Cobb and Leon Bye, recently rode 20 miles at a fair speed in this manner, and this is a tip worth remembering, but it is far better to carry a spare accumulator on the machine."

AN ENTHUSIAST who attended the French Grand Prix remarked: "We slept (?) in a village on the 'circuit' the night before the race, and the 'touring' motor cycles which passed under the window were so noisy that the exhaust almost made the window curtains wave every time a machine went by. How any rider can endure the noise for more than a few miles is puzzling in the extreme."

FRENCH-MADE Griīon motorcycles were a force to be reckoned with in Continental road races in the hands of aces including Demester, Guippone and Cissac. Now they arrived in Blighty via an importer in Tooting. Power was courtesy of Zedel engines; advanced features included Dinin accumulators □ðlled with a 'gelatine electrolyte' and shaft drive for both the magneto and rear wheel.



The French Griīon 3½hp racer arrived in Tooting..



Rochet is an almost forgotten French pioneer which debuted with an IOE single in 1902 but stole a march on the competition with a 5½hp unit-construction in-line vertical twin. This example even sports what later generation would call a bikini fairing. Formidable!

FROM A REPORT on a poorly planned hill-starting trial: "They got the word to proceed up the hill, which practically immediately soared heavenwards with a grade of 1 in 4½. A most pathetic exhibition naturally resulted. Several unfortunates actually rode on single-geared twins scaling up to a couple of hundredweights. One or two men got their machines going again—all credit to them; but by this time were far too exhausted to mount, or even to steer, and were dragged all over the road by their plunging monsters, until they contrived to switch oī and relinquish the attempt…"

MORE THAN 90% of the motor cycles in New Zealand were English, notably Rex, Ariel and Triumph. Australians were said to favour "low-priced foreign machines".

SPEEDTRAPSwerenomore popular then than they are now, judging by the following comments: “There is increasing evidence that the police mean to be very busy with their vile trapping system this summer, and no doubt, as before, just on those nice stretches of open road where there is absolutely no danger, and not the least possible inconvenience to anyone.”“If a motor cyclist is unfortunate enough to run into one of these un-English police traps it is quite suïicient to bring forth the stereotyped £5 and costs irrespective of the magnitude of the oïence. We have no quarrel with the police; they are merely carrying out their instructions. A sergeant admitted to us only a few days ago that he thought traps unsportsmanlike and un-English and he did not like them, but he had to think of others, and when sent out trapping it was ‘unlucky’ to go back without a certain bag. The magistrates might think he had not done his duty. For wife beating, brutal behaviour, disgusting language in the street, and the majority of petty oïences, except, perhaps, oïences against the game laws, the usual □ðneisaboutone-□ðfthof the above amount. It makes one wonder how long some honorary justices will be allowed to sit and administer the law, even with some legal assistance.”

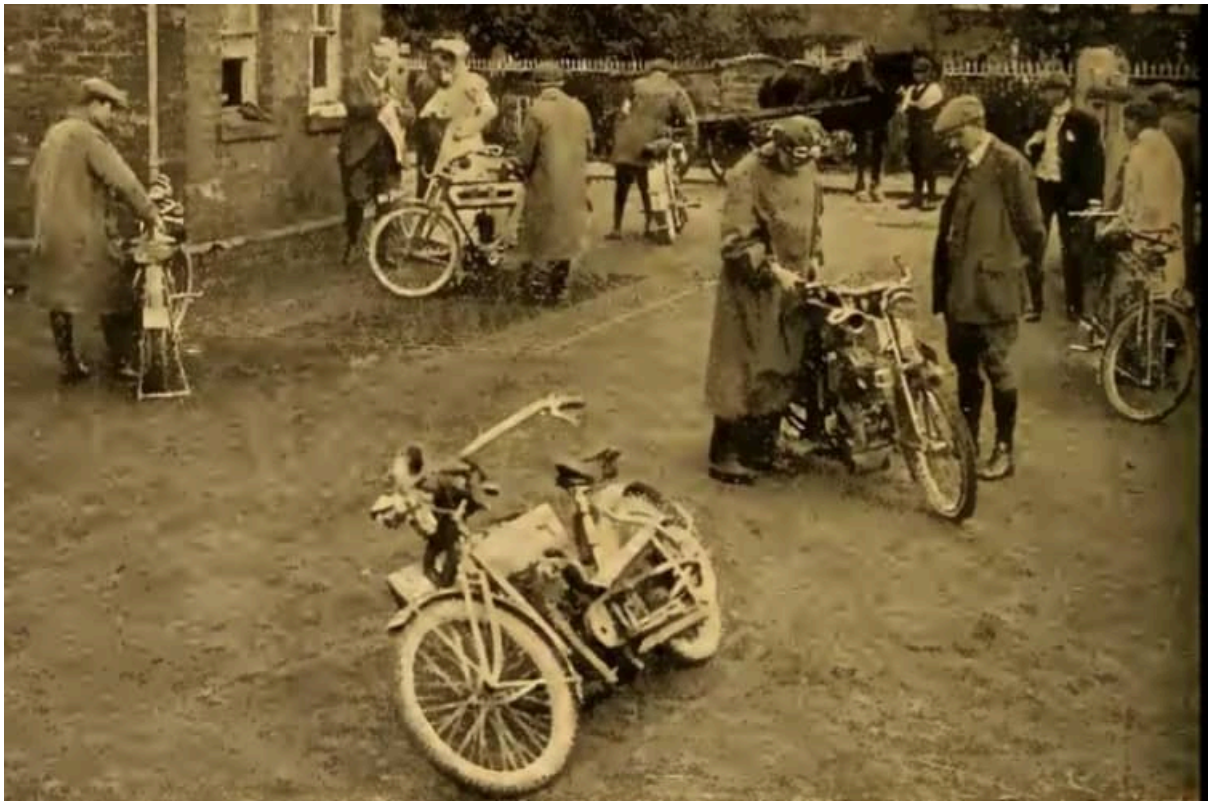
Speed traps have never been popular with motor cyclists.

TWOSPEEDINGchargesagainstmotorcyclists in Maidstone were dropped because the police were unable to stop the miscreants. The law required that police “trappers” had to stop their victims; noting registrations was not enough evidence for a successful prosecution.

GIUPPONE’SRECORDdistanceof 63 miles 1,078 yards, set in 1905, was still standing but Charley Collier was getting faster and faster—his British hour record of 56 miles 607 yards was said to compare favourably with the world’s best, taking tracks into account.
Collier was also active in the class for bikes with a bore/stroke of 76x76mm (345cc), managing 51 miles 540 yards in the hour which was nigh on four miles better than the 1906 record.

A GROWINGnumberof bikes were sporting “electric press-button motor horns in place of bulb horns”. But riders holidaying in Francenoted that many locals had replaced their horns with sirens and exhaust whistles—and many bikes did without silencers.

THECOVENTRYMCCstageda100-mile reliability trial in which each rider started with 100 points but lost one point for each minute's stop "other than a compulsory stop for traïic". But with riders reportedly tiring of 100 and 200-mile reliability trials the ACCcame up with a novelty event: an "open variable speed test". Eachrider would tackle a test hill as fast as possible, ride back down and climb again as slowly as possible. Thewinners would be the riders who recorded the greatestdiïerence between the two times, with classes for singles and twins with and without variable gears.



Weighingin at the Coventry club's 100-mile trial.

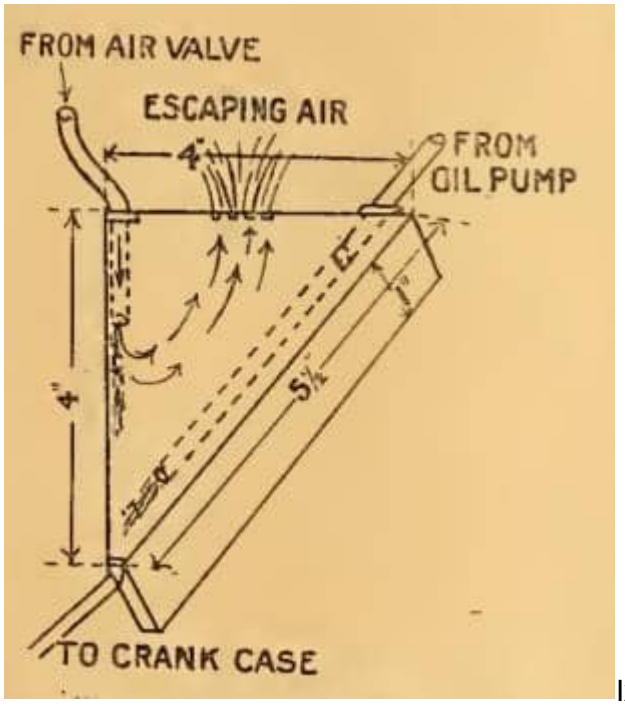
THECOVENTRYMCC,WHICH had won the □ðrstMCCTeamTrial in 1904, regained the cup from the MCC, which had won in 1905 and 1906. Theother entrants were the Birmingham MCC, Southern MC and the Great Yarmouth MC.

THEACUMADEan (unsuccessful) attempt to havemotor cycle racing included in the Olympic Games, which were based in London: "We trust the organiserswill not overlook the motor cycle, otherwise the gamescannot be called representative of Englishpastimes."

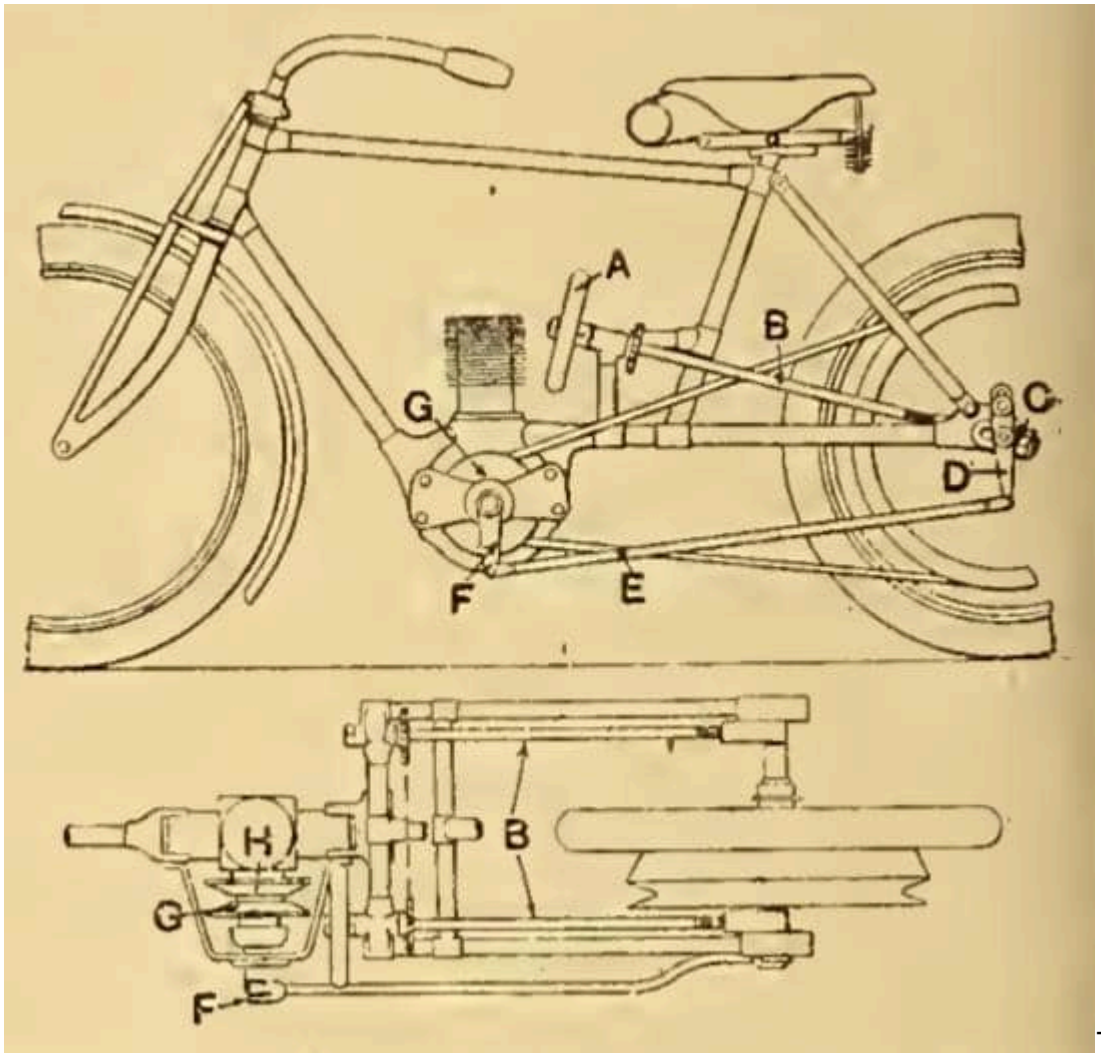
MRSCRIVENSofthe Bradford MCC (5hp Rextwin) won a fuel consumption trial at a thrifty 136mpg.

IXIONRIGGEDanoil breather having seen oil forced from a fractured pipe. He saw it as a way of squeezinga little extra power from an engine as the descending piston would no longer have to overcome crankcase pressure. He also reported on a Rex□ðttedwitha Holts-White hydraulic pulley, designed to oïer automatic in□ðnitelyvariablegearchanginga year before the manual Zenith Gradua hit the street and □ðveyearsbeforethe(also manual) RudgeMulti: "The sensation is most peculiar, as the engineruns at a constant speed up hill and down dale, and yet the driver never removes a □ðngerfromthehandle grips and no sound of changing gears is heard. The single device of the dash pot with its two pistons and connecting pipe both alters the size of the

pulley to suit the load, and also adjusts the jockey pulley to □ðtthealteredbelt length." However, the Gradua was in the pipe line–Freddie Barnes panented his system in 1907…



Ixion's air breather cured an oil leak, clever chap.



The Gradua patent: “An In□ðnitelyVariableGear. This gear comprises an expanding pulley working in conjunction with a movable back wheel, the wheel moving backwards and for- wards, as the case may be, to tighten or slacken the belt as the pulley is adjusted. The hand wheel is operated, which, by means of the rods B, forces the back wheel in either direction in the slides C. By means of the link D and rod E, the crank F is moved when the position of the back axle is changed. This crank F is connected through screw gearing to the movable pulley □ðangeG. Thus, when the lever F is moved, the screw gearing operates to move the pulley □ðangeGnearerto or further from the □ðxed□ðangeH. Inthismanner, when the gear is changed the tension of the belt. does not vary.—FWBarnes, No 12,131, 1907.”

A SPEEDTRAP was spotted on the Maidstone road run by two cops dressed as clergymen.

THELAW required any motor cycle over 5cwt to be □ðttedwitha reverse gear.

TURKEYLEGALISED theimportof motor cycles (and cars) but banned them from urban streets.

A NUMBER ofpolytechnics were oīering tuition in puncture repairs. But riders sick of punctures could have their tyres □ðlledwith‘Elastes’.

A GROWING numberof enthusiasts were opting for handlebar control for throttle, choke and spark. A hill-climbing champion reported on a climb up a ‘freak hill’ where the rough road, combined with the heavy pedalling he had to do, had made it impossible for him to take his

hands oī the bar. He concluded that he would have failed miserably on the hill without handlebar control.

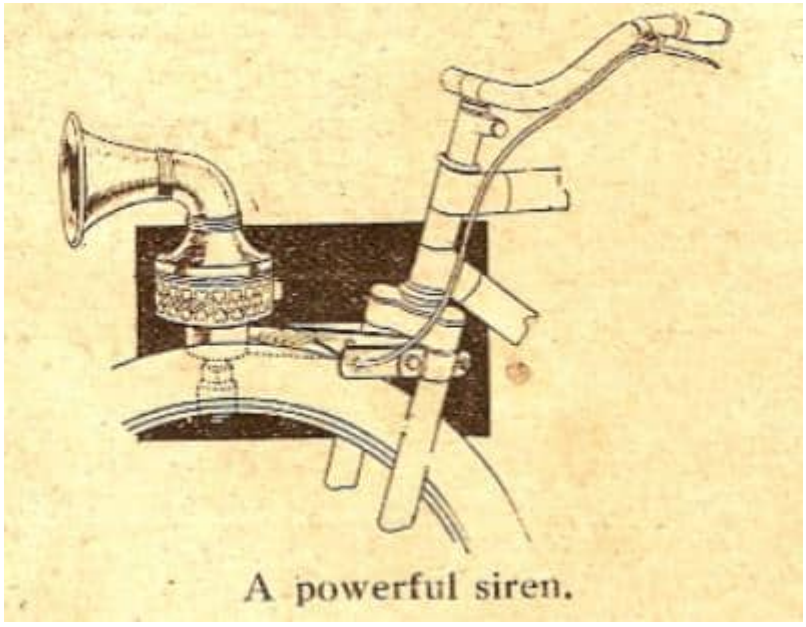
A SHARP-EYED enthusiast wrote: “What was long an eyesore when passing through Kenilworth, Warwickshire, was an ungrammatical notice at a dangerous turning to the eīect, ‘Drive slow’. On a recent visit I was relieved to □ðnd that the warning has been revised, and a red board with white lettering, “Drive slowly” substituted.”

BOWDENS PATENT Syndicate was actively promoting the “famous Bowden wire mechanism, to prove to all and sundry how power can be transmitted round a corner without having recourse to rods or levers”. Other Bowden products included a “puncture sealer and rubber preservative”.

THE JOHANNESBURG Motor Cycling Club held an 80-mile road race; the □rst three bikes over the line were a Triumph, a Rover and an Adler.

IN AUSTRALIA the Gold □elds club staged a fuel consumption trial in which the top six places went to three Minervas and three Saroleas, ahead of a Triumph.

AN ENTHUSIAST using the nom de plume ‘Silence vs Safety’ wrote: “I ride a powerful 3½hp myself, and when I □rst had it I set about making the machine more quiet, with considerable success as regards silence. Afterwards it was a perfect misery riding my machine in any traīic at all. It necessitated continuous horn blowing and restarting, and many an angry word. I put up with this for about three weeks. I then stripped oī my appliance, and □tted an exhaust cut-out operated by foot. I now run through traīic with hardly any inconvenience at all.”


A powerful siren.

If you had a weak horn you could always upgrade to a siren. The Blue ‘Un remarked: “From time to time we hear of owners of powerful multicylinder machines who desire to □t a siren in order that their was may be made clear before them.” Gamages had this in stock at 25s 6d.

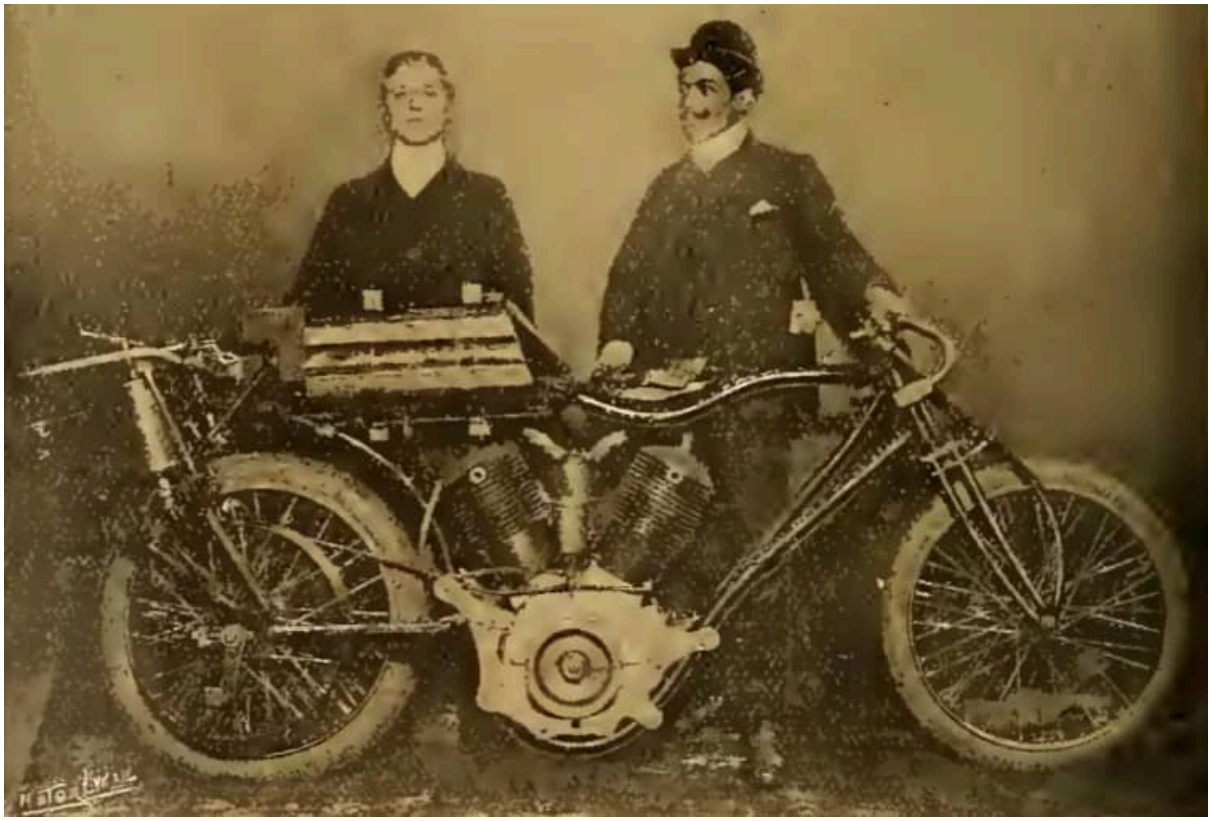
A RIDER TOURING Scotland on his 3hp Triumph tackled the notorious Rest and Be Thankful hill in Glen Croe: “I opened the throttle slightly, advance the spark to its utmost, and was soon thundering along at over 30mph, dodging huge stones and gaping cart ruts. Gradually the speed dwindled down to the legal limit, and then to 15mph, but as I had still a long way to go, I refrained from further opening the throttle, as I thought that to give any more gas would only promote overheating. A few yards of easier gradient allowed the engine to again gather speed,

but ultimately I saw that my only hope of success lay in giving the engine more gas. I did so, but after surmounting another □ðftyyards, theengine began to labour. I also began to labour (at the pedals), but all the strength I had got was of little use; notwithstanding my exertions, the engine ceased □ðringmostabruptly. It had overheated, and so had I. Honest sweat ran down my face, and I lay down o the grass to recover my breath. Shortly, a farmer appeared on the scene. He was much interested in the motor cycle, and I gathered from him that I was almost at the summit. He told me in reply to my interrogation that he had seen several motor cyclists come up the Glen, but they usually turned when they saw the hill. "Aye, man," continued he, "an' A've see caurs stuck no hauf sae faur up as this", at which remark I felt considerable pride in my machine which had carried me so well."

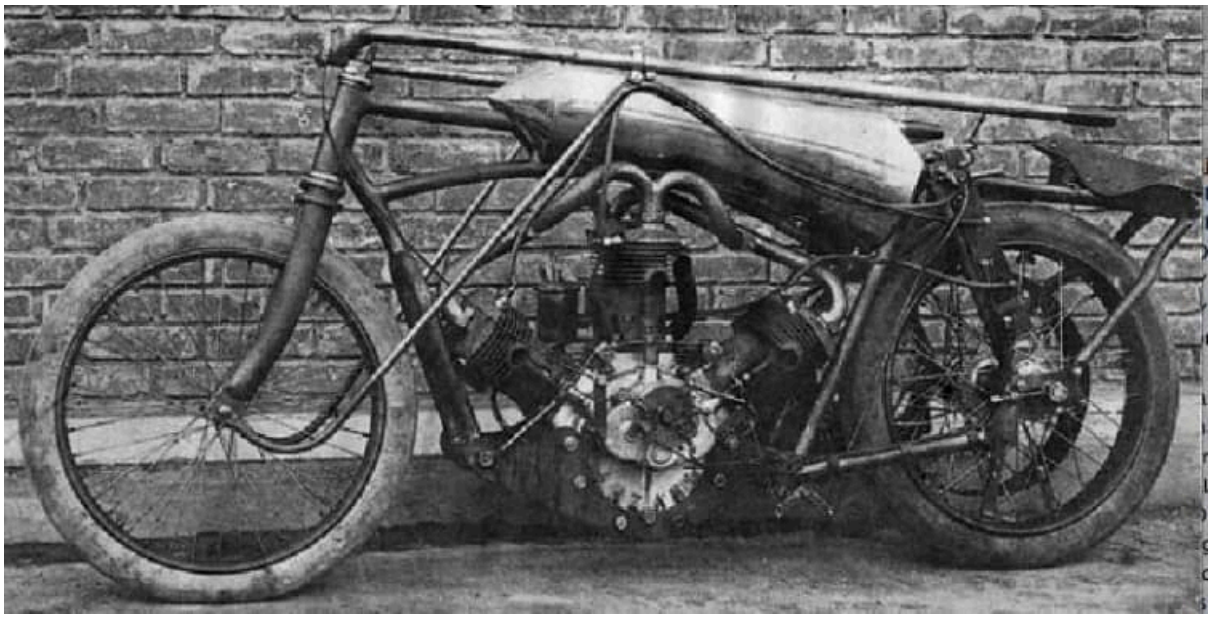
SIDECARPIONEERMills& Fulford, while agreeing with a correspondent that sidecars were best □ðttedtotheleft of the motor cycle, stressed that because some riders wanted right-hand sidecars they would continue to make them so "they can be used upon either side by the simple removal of the chair and springs". Thecompany was strongly opposed to calls for a sidecar brake to be □ðttedandcontrolled by the sidecar passenger.

FOLLOWINGANexchangeof increasingly sniīy letters in the Blue 'Un a propos the carriage of spare dry-cell batteries, an enthusiast named Stanley Reed showed a nice line in dry wit: "The concluding remark in Mr Akermau's letter anent waistcoat pockets smacks most unmistakably of polite incredulity as to my ability to run on a dry cell of such modest dimensions, that it can be thus accommodated. It may interest that gentleman to know that far from stretching the proverbial point, I have by me a cell hailing from the Fatherland called the Daimon, which measures two inches by □ðve-eighthsofaninch, on which I can run perfectly. Now, as the length of my waistcoat pocket is precisely □ðveinches, andthedepth thereof four, a pencil, paper, and a modicum of patience will disclose the startling arithmetical fact that my much-maligned pocket will accommodate not one but 12 spares, which statement I shall be most happy to ocularly demonstrate to Mr. Ackerman if he cares to communicate with me."

PACINGMOTORcycles used on foreign cycle tracks were said to be "getting beyond all reason in the direction of size and power". Thebiggest bicycle pacer built in Englandwas a 14hp De Dion one-lunger until a JAP-poweredBattwin promised to raise the stakes to 20hp. A French builder shoehorned a 40hp four-pot car engine into a tandem but the valuable Continental pacing market was dominated by Anzani with a 1,730cc V-twin and a 2.6-litre V3—the French army used the V3 in an experimental Bistinof aeroplane.



This French Anzani pacer certainly wasn't small.



An Anzani V3 pacing engine took to the skies.

MOTORCYCLISTS were warned of "a growing evil in connection with the carriage of motor cycles by rail. The inquisitiveness of railway porters, born of a little knowledge of the mechanism of a motor cycle, leads them in many instances to interfere with the delicate working parts of a motor cycle. Such experiments as detaching the □ðoatpinin an attempt to □ðoodthecarburettor when the tank is empty, operating the lubricating pump until the engine is over charged with oil, and working all the levers vigorously in any direction in which they will move, are not calculated to assist the delivery of the machine in good going order upon arrival at its destination, or to improve its riding condition."

KENTCOUNTYCouncilsurveyorsreported that “nothing but tarred macadam will protect the road from the eīect of studded car tyres, which are held responsible for the largely increased cost of main road maintenance in the county”.

MAJOR-GENERALSirHenryColville, KCMG,president of the MCC, died after his bike was hit by a car driven by Brigadier-General Sir HS Rawlinson. Thecoroner heard that General Colville had taken a blind corner on the wrong side of the road.

Major-General Sir Henry Colville KCMGCB took one chance too many on a blind corner.

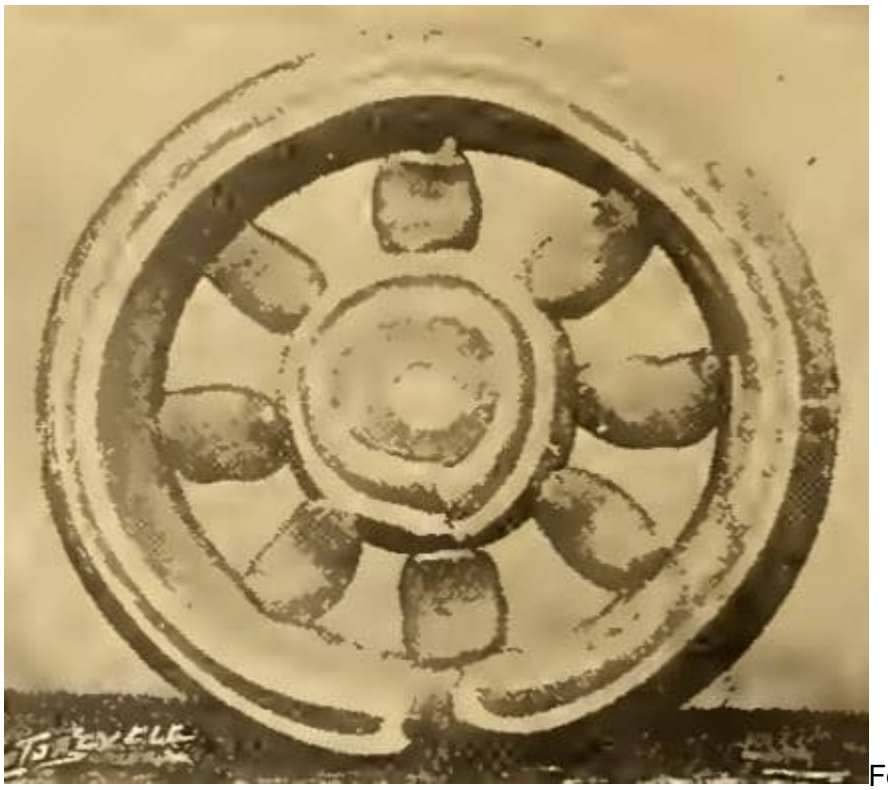
AN AMERICANpundit warned that US manufacturers were “far behind in the matter of design of motor cycles” Comfort and even reliability was often sacri□ðcedtoappearance,he added, so “some motor cycles are very beautiful looking little aīairs, but when it comes to reliability and satisfactory touring, they are very poor machines indeed”. Nonetheless he predicted that within two yearsthere would be at least two motor cycles in America for everycar.

MEANWHILEOVERthepond his English counterpart gleefully noted: “Each year American motor cycles more closely fellow Englishpractice, and the new pattern machines exhibited at the New Yorkshows are no exception to the rule. We can well remember when motor cycle manufacturers on the other side of the water were marketing 1½hp and 2hp machines and described English3hp machines as clumsy, too heavy, and cumbrous, and twin-cylinder machines were considered over-enginedfreaks. It is amusing to note that our cousins have gradually increased the power of their machines as we predicted…the Indian machine, the best known on this side of the water by reason of its performances in the 1,000-miles Trial, the models for 1908 are 2¾hp and 3½hp single-cylinder bicycles, and a 5hp twin-cylinder mount. Previousmodels were 1¾hp and 2hp. Mechanical inlet valves will be standard on the new models. Magnetos, spring forks, mud□ðaps,longwheelbases and English-made Brooke’s saddles are other proofs of how Americans are gradually conforming to our ideas. But without a doubt American makers have still something to learn in the matter of design.

“THE NUMBERofmotor cycle fatalities this year shows no comparison in contrast with cars and pedal cycles; this despite the greatly increasing use of powerful machines. A contributor is of

the opinion that this is due to the purr of a motor cycle engine, which he considers an advantage. There is no doubt that an absolutely silent machine would add to the danger of the highways, and the 'pop-pop' of the engine is a much better warning of approach than the hoot of the horn, the shriek of the siren, or the peculiarly aggressive exhaust whistle."

DURING THE annual dinner of the Sheffield and Hallamshire MCC the club's least successful competitor was presented with a specially made sugar wheel weighing over 30lb. "The formal presentation was greeted with roars of laughter."



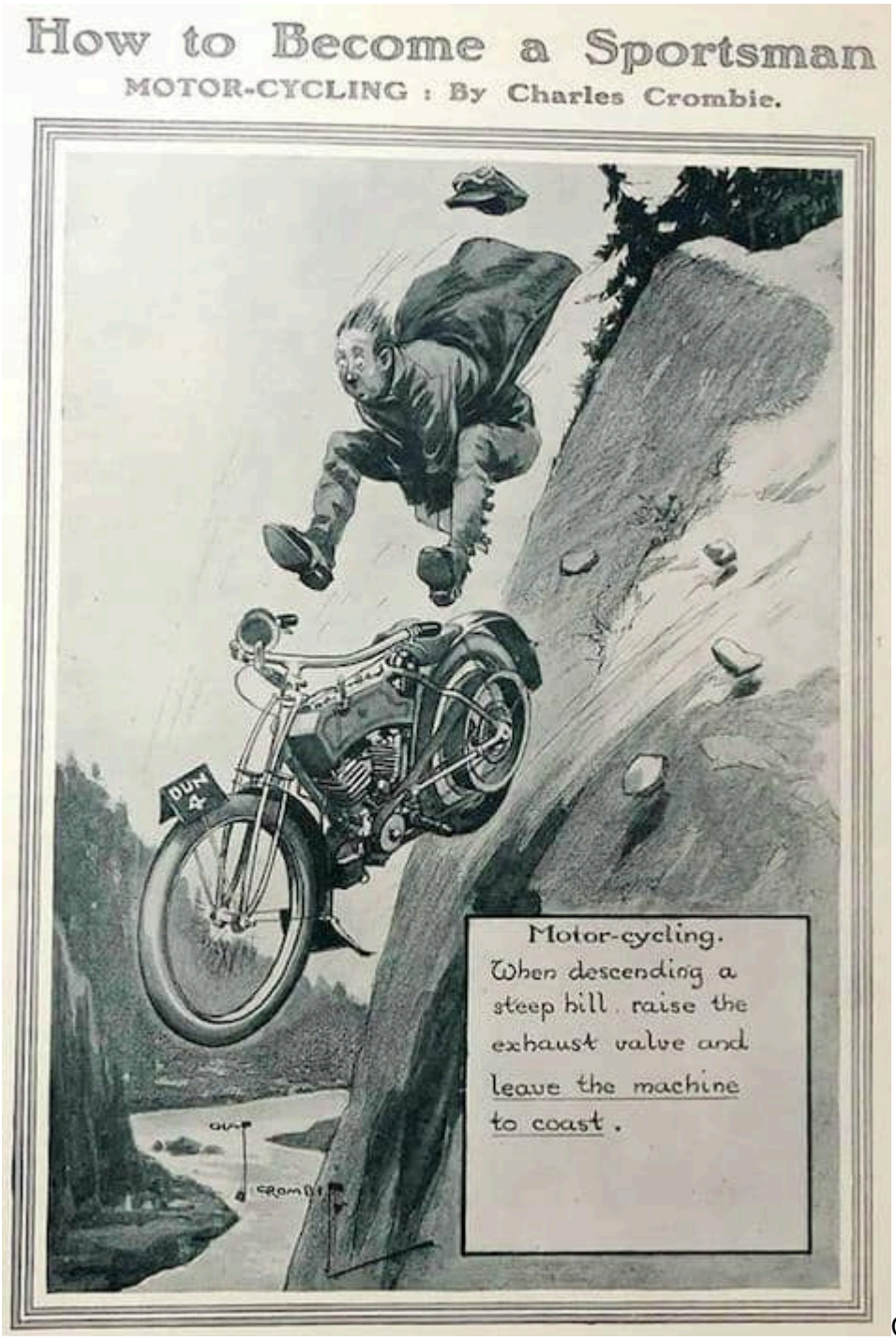
For the rider who has everything: a 30lb sugar wheel.

JAP REPORTED that its 4½hp engine, "when running light, and with careful adjustment", would run up to 4,000rpm with a piston speed of nearly 2,500 feet per minute.

A CLEMENT-Garrard rider reported that its adjustable exhaust tappet was "very efficient and useful". He had been puzzled by a lack of power until he tried different lifts of the exhaust valve and considered adjustable tappets were "almost a necessity".

THE KING of Spain visited Singer's London depot to buy a 9hp Singer tricar for Prince Leopold of Battenberg. It had three speeds and reverse with a top speed of over 40mph.

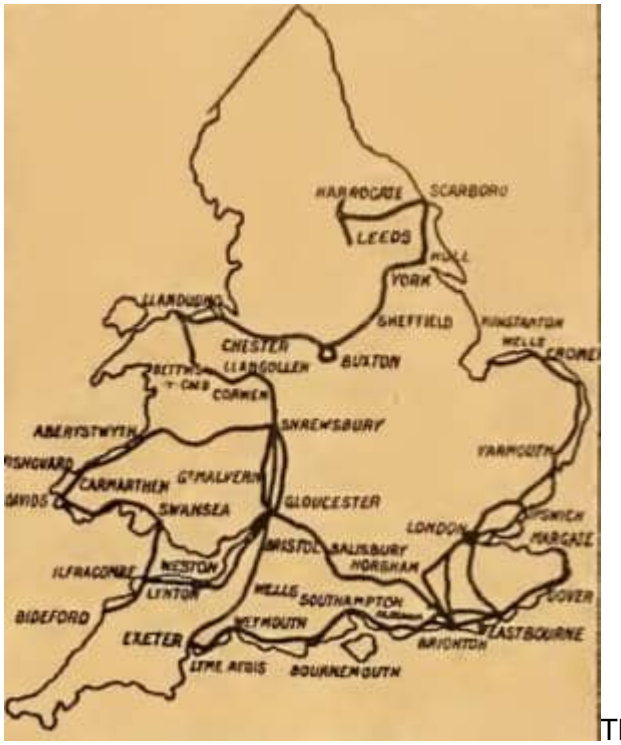
FROM THE Daily Telegraph: ""Those pessimists who a year or two ago forecasted the early disappearance of the motor cycle must now belong to a disowned race. At any rate, the single-track, self-propelled machine—and the three-wheeled variety, for that matter—never showed greater signs of virility than at the present moment."


How to Become a Sportsman
MOTOR-CYCLING : By Charles Crombie.
DUNLOP
Motor-cycling.
When descending a steep hill, raise the exhaust valve and leave the machine to coast.
Culled from The Tatler.

AS BIKES BECAME more dependable FC Dee, a theatrical touring manager, extolled the virtues of his 3½hp Vindec Special. Describing himself as "something more than a butter□ðyrider" he recorded a typical week on two wheels: Tuesday, Worthing to Exmouth (only stops for meals and replenishing); Wednesday, Exmouth, 50-mile circuit; Friday, Exmouth to within three miles of Worcester (accumulator troubles necessitated a walk, had no spare. My own fault); Saturday, Worcester to Llandudno. "After this," he said, "similar distances were regularly covered, either on the Sunday or Thursday for four months, with the exception of three night journeys by train. Distance was now no deterrent to me and I was able to put in some very interesting rides—rides which sometimes meant 10 hours in the saddle at the legal limit to enable me to reach my

destination before sunset. The greatest advantage of the motor cycle is that it can go practically anywhere; little or nothing is barred to the motor cyclist except a private road. Turf riding is excellent, especially on the South Downs, and the ride I enjoyed most, although short, was a non-stop from the Eastbourne Park to the Coastguard Station at the top of Beachy Head, including in the ascent stretches of one in eight, hairpin corners, loose □ðints, anda □ðnal 400-yard ride on the close lamb-cropped grass. Riding on the sandy beach also is delightful, although it is rarely one can □ðnd more than a few miles of it which are □ðrm enough for speedy work. My experience is that north of Yarmouth and south of Ilfracombe the sand is quite □ðrm, and motor cyclists can often be seen testing their machines at these seaside resorts."

Theatrical agent FC Dee with his trusty Vindec outside the Yarmouth Theatre.

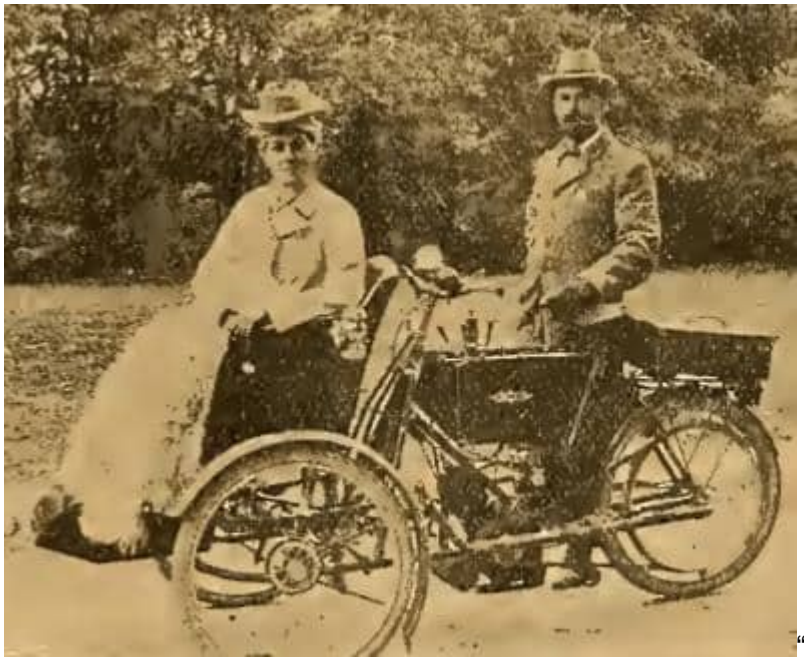


Theroute that was covered“without the slightest mishap”.

ADVERTSFORALondonmusic hall act promised that “the usual sharply banked type resembling a saucer in shape…will have an extension □ðttedinaperpendicular position. This will necessitate the riders, who will use Motosacoche machines, assuming an absolutely horizontal position relative to the □ðooroftthestage. Truly a sensational performance.”

A LESSSUCCESSFULactinvolved a strongman holding two 8hp cars from moving. Came the big night the strongman took up his position at the back of the □ðrstcarandcalled to the driver to let the clutch in. The driver, however, had mistakenly engaged reverse gear and reversed over the brawny artiste bringing the act to an unexpected conclusion.

FROMAUSpublication, TheBicycling World: “Harry Hewitt Griīin, an Englishman who is old enough to know better, urgesthat motor bicycles be styled ‘bicars’ and tricycles ‘tricars’. But why not go plumb daft while about it and entirely eliminate the word ‘cycle?’ Griīin evidently is suīering from a severerush of ‘automobilism’—another beautiful word that compares with ‘cyclism’—to the head.”



“Detective-sergeant Eustace of the Metropolitan Police has used the Phoenix Trimo, with which he is depicted, for 4½ years. Each year it has taken the owner and his wife a fourteen days’ tour and the Minerva engine has never been dismantled, nor have the piston rings been removed, The petrol consumption averages about 100mpg, and Mr Eustace says the engine has never overheated,

RAC SECRETARY Claude Johnson invented what might well have been the world’s □ðrst motor scooter. The Max Scooter, powered by a 2½hp Triumph lump, was an early user of twistgrip controls. There was no seat, instead the rider stood on running boards that could be folded down to act as sidestands. The Max failed to □ðnd buyers but Johnson went on to be MD of Rolls Royce.

AT YEAR’S END the British industry had produced 3,600 motor cycles of which 800 were exported; there were an estimated 60,000 “self-propelled bicycles” on the road. There were 31,286 motor vehicles in France; a year-on-year increase of 5,024 (the French did not diīerentiate between motor cycles and cars but their two-wheeler parc was dominated by lightweights).

TO CLOSE the year, here’s a charming yarn from The Motor Cycle’s Christmas issue…

“**The Motor Cycle Gliderette: A vision of 1920**

SEATED COMFORTABLY in my oīice chair one recent depressing day, with the last copy of The Motor Cycle on one side of the desk and a pile of unread correspondence, draft minutes, etc, on the other, I sat gazing into the oīice □ðre speculating as to how soon it would be possible for me to glide to business on an aeroplane. But I must be dreaming; why, of course, the air had been conquered long ago. Was not my latest aeroglider at the present moment straining at its grappling irons, which were attached to the oīicial roof? I myself had won the great Daily Mail and other prizes for a □ðight to Manchester, having accomplished the journey in 35min 3⅘sec, with two stops for petrol only. I was now the secretary of a great aeroplane company. The next day being a Stock Exchange holiday, saw me gently gliding over London at an altitude of some 500ft, with my toes on the heads of the cylinders, for the temperature, although it was summer time, was distinctly chilly at this height, and lounging back in a luxurious pneumatic chair. Presently I hear a gentle pur-r-r-r, and up came a special news slider with the earliest

edition of the Atmospheric News and Sliders' Gazette. As I open the paper I re□ðectonthe marvellous handiness and power of these little 2hp air cutters—the evolution of the lightweight motor tycle of 1907. The□ðrstitemthat catches my eye is the startling headline, "The Aero Pest": "The new Act to prevent high □ðight,andconsequentdanger to the terrestrial public by a fall, and also danger to church spires and other high buildings by low gliding…The Police and LCC have complete control of the atmosphere and all that □ðoats."Exceptmicrobes,presumably. Ah! What have we here?"The Motor Cycle and Aeroplanists' News has secured a lease of the two towers of the new LCC Palace for a gliding oī station for its newsboys." Good old MC and AN. Always to the front of journalism. "The Thundererhas followed this example by leasing all the roofs of the great railway stations." Suddenly looking up over the edge of my paper, I discern a great Santos-Dumont airship making straight for me. It comes on with a terri□ðcroarofits ten cylinder 2,000hp engines, only just leaving me time to pull the cable of the 40ft de□ðectorplane,reducemy propeller revolutions, and gently glide under the leviathan. On looking up I □ðnditisMr F Straight, the secretary of the late ACU, now the Auto-Aero and Terrestrial MCU. He sings out as he glides over me, "Flopping over to Paris for breakfast meet you on earth for lunch." He is soon lost to view amongst the thousands of black specks representing fellow □ðiers.Hismachineis the largest in existence. Theengines are driven by liquid air, petrol vapour having long been discarded, owing to the freezing of the carburetters and declination troubles. It is □ðttedwith magnetic de□ðectorandsoaringplanes, automatic balancer, etc.

A flighty suggestion.

I resume my journal. Ah! Another injustice to aeroplanists. “Notice is hereby given that no gliders or aeroplanes are allowed over the city from 10am to 6pm, as serious complaints have been made of the darkness of the sky caused by □ðighters.”
I pitch the journal overboard, too disgusted to peruse
further. Glancing over the side of the car, another sign of the times meets my vision. Some large photo studios have laid down a □ðatsignontheir roofs, ”Gliders keep clear of the line of light,” “Studio,” “No descents here,”“Hospital—no anchorage.”
Presently I discern another purring little glider with blue wings and the sign thereon “The Motor Cycle and Aeroplanists’ News”. Up it comes with a swirl, and the occupant delivers my copy, and is soon lost to view. I □ðapmyrightwing, and rise another 1,000ft to prepare for a good hour’s enjoyable read. I rapidly scan the columns on aeronautical matters, the idiosyncrasies of soaring and depressor wings, terrestrial motor queries, etc, when I suddenly open a page with the ominous heading “Aero Police Traps” in bold type. Yes, the police still play their little game for promotion, but there are no friendly hedgesto hide in. Theterrestrial crawlers on motor cars have a good time now. Robert soars (literally) after higher game. Here is the paragraph:

“Prosecution for Exceedingthe Altitude Limit. TheK—tonpolice succeeded in bringing to earth 1 batch of glidists last Sundayover Esherfor exceedingthe altitude limit, viz, one and a half miles. Result, £20 towards a new police glider.” We aeroists fear no speed limit persecutions; you see speed doesn’t matter, as there are no pedestrians up here—Wecan only smash ourselves up. Of course, when we do collide the road below is blocked while our remains are being carted away. Theycan only go for us for exceedingthe “altitude limit” and “darkening the sky”. Themethod adopted by the aero police is most diabolical. Theyrise on powerful soarers, and throw a lasso round your propeller blades, thus stopping your lateral and vertical motion, and you glide to earth, being arrested with a more or less gentle crash, according to the skill of the lassoist.

Suddenly glancing up to my own altitude instrument, I discovered I was 150ft. abovethe limit. I at once pulled my de□ðectorcordandglided down some 200ft, but not before a policeman spied me out and came rushing up, and, before I could again descend further, threw his lasso at my propeller and missed, but struck and upset my gravitating balancers, with the result that I made a sudden dive earthwards and came down crash in Piccadilly. I remember nothing more until a voice said, “A sergeant to see you, sir.” I raised my head, and discovered I had been asleep for two hours. “Show him in,” I said, and there stood the redoubtable sergeant, with a summons for exceedingthe limit at Epsomand killing a cat.

We were still in the ageof the persecuted motorist, and the aeroplanes had not yet arrived to attract the promotion-seeking Roberto’s attention.”

And here’s a selection of contemporary ads…

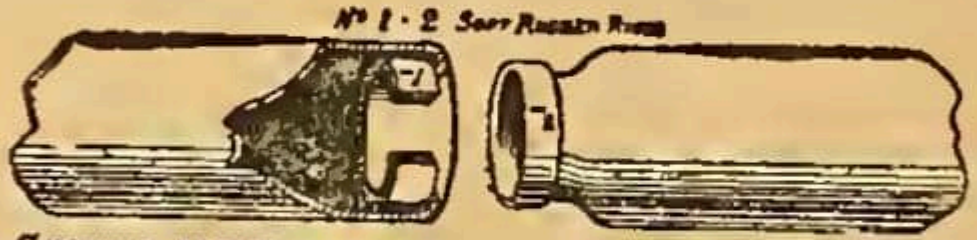
THE POPULAR SWITCH IS THE M.&B.
Over 10,000 sold.
Price: 1-way, 5/-; 2-way, 6/- post free
List of Accessories free on application
MASON & BROWN,
VOLTA WORKS, LEICESTER.
Anglian Motor Cycles.
LIGHT MODEL - - £26 0 0
TOURIST MODEL, 2-speed, Spring Forks, Magneto £50 0 0
Complete Sets Gear - - £8 10 0
PARTICULARS FROM
ANGLIAN MOTOR Co., Ltd., Beccles
and H. P. ROSE, Ltd., 28, Frith St., W.
English Made Throughout
of the Finest Leather and Best Hard Steel.
Ensure positive safety on any condition of road.
PULLMAN'S NON-SKID BANDS
You can have them vulcanised to your own cycle tyres at 17/6 per wheel.
WESTBROOK MILLS,
GODALMING, Surrey,
and 17, Greek Street, Soho, W.
RELIABILITY H. H. ECONOMY.
(Hellesen-Hunt).
COMPLETE SYSTEM of DRY BATTERY IGNITION,
For MOTOR CARS, CYCLES, and BOATS.
ALWAYS READY.
CLEAN and DRY.
GREAT MILEAGE.
EFFICIENCY.
KEEPS FOR YEARS.
Catalogue and Pamphlet Free.
Wholesale BROWN BROS, Ltd., Gt. Eastern St. London.
HELLESENS IGNITION BATTERY "FLASH"
CYCLE COIL 15/6.
CYCLE BATTERY, 6/6 each. Sole Concessionnaire for United Kingdom
A. H. HUNT, 115-117, Cannon Street, LONDON.

G. T. RICHES & CO.,

19, Store Street, London.

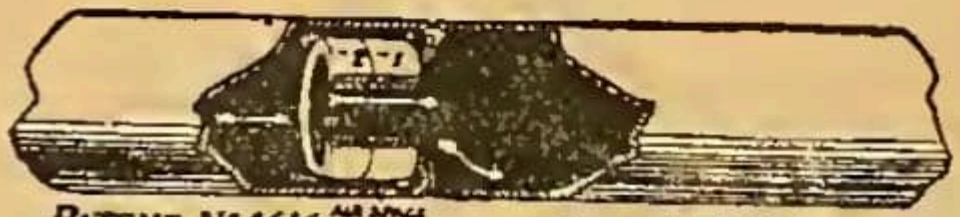
Please write for our 1907 Catalogue.

"RICH" DETACHABLE AIR TUBE.



SHOWING END TURNED IN

SECTION DETACHED



PATENT Nº 4616

SECTION ATTACHED

TOO LATE FOR CLASSIFICATION.

WANTED, 2 or 3 h.p. motor cycle, any good make (Clement-Garrard preferred).—Particulars and lowest prices to Frank Evans, Wellhead, Perry Barr, Birmingham.

MINERVA, 4½ h.p., twin, Continental tyres, girder forks, Bassee-Michel coil, Longuemare carburetter, two accumulators; £24; trial.—229, Burdett Road, E.

TRICAR Frame (open), fitted with 3 h.p. De Dion pattern engine, perfect order, upholstered wicker driver's seat, starting handle, carburetter; £5, worth double; room wanted.—Pilot, 117, Soho Road, Birmingham.

ENGINE, 2½ h.p., inclined, frame tank, 26in. wheels, D. and R. carburetter, £3; 28 by 2 beaded cover, new, 10s. 6d.; Humber tank, sight feed oil pump, 10s., or exchange; call evenings.—29, Theobald Street, New Kent Road, London.

EXCHANGE 4½ h.p. Coronet motor cycle, long and low, nearly new, for tricar, good condition; little cash given.—Particulars, 27, Elcho Street, Preston.

ART Cane Forecarriage Seat, springs, red upholstered, 30s.; ⅞in. V belt, new, 4d. foot; genuine De Dion tricycle, new plated and enamelled, less engine and carburetter, latest pattern, £6, or exchange for quad front to fit De Dion tricycle; 2¾ h.p. De Dion tricycle, good order, £8 10s.; 3½ h.p. De Dion water-cooled tricycle, £16 10s.; 3¾ h.p. Rex motor cycle, as new, £14; 2¾ h.p. genuine F.N. motor cycle, £15; second-hand tricycle and motor cycle tyres, various sizes, cheap to clear; Humber carburetter, complete, 15s.; coils from 10s.—James, 88, Snig Hill, Sheffield.

MOTOR BICYCLES FOR SALE.

N.S.U. Motors (West London district agency).—We will accept your old motor in part payment for these machines; deferred payments.—Eagles and Co., High Street, Acton.

BUCHET racing motor, new, do fifty hour, low built, sidecar fitted; £28; sell separate; Peugeot racing motor, very fast, low built; £16.—Wingfield, 112, New King's Road, Fulham.

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2 h.p. Singer, magneto, spare tank, numbers, etc., perfect; cash £10, or part exchange; wanted, oil or gas engine, about 2 h.p., lathe, typewriter, piano.—W. Pack, Sunningdale, Berks.

REX, 50 guinea model, 3¼ h.p., Universal silencer, spring forks, Whittle Link-grip belt, stand, perfect condition, scarcely used; £15, genuine bargain.—27, Dukes Avenue, Muswell Hill, N.

3½ h.p. Kelecom, F.N. carburetter, new Pfluger accumulator, new Bassee-Michel coil, light, low, footboards, grand condition; £14 10s.—3, Station Avenue, Loughborough Junction, London.

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2 h.p. Motor Cycle, Minerva engine, spring forks, good condition; no reasonable offer refused, or will exchange for Bat, sidecar, and cash.—B. Bedford, 8, Beech Street, Fairfield, Liverpool.

BIRMINGHAM.—The new Triumph, 1907, 3½ h.p., magneto model, will shortly be seen at Premier Motor Agency, the Birmingham sole agents; largest motor cycle showrooms in England.

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3 h.p. Roc, Stanley Show machine, 1903, just thoroughly overhauled, and in excellent running order; £25, or near offer, or exchange higher power.—Elwes, 1, Hall Place Gardens, St. Albans.

3½ h.p. Whitley, first-rate condition, and ready for the road, new spray carburetter, trembler coil, Bowden exhaust lift, and brake; £12, or near offer.—Kerby, Bright Street, Coventry.

3½ h.p. Linon, spray, Lincona, low, tyres almost new, beautiful condition, pulls sidecar, bottom of cylinder slightly cracked, no detriment; sacrifice £7.—R. Else, Leawood, near Matlock.

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3 h.p. Beeston Humber, N.S.U. engine and carburetter, £15; 1¾ h.p. F.N., lightweight, £10; 3 h.p. Excelsior, M.M.C. engine, £14; 1¾ h.p. Minerva, £5 10s.—Eagles and Co., High Street, Acton, W.

MOTOR BICYCLES FOR SALE

3½ h.p. M.M.C. Excelsior, Clinchers, A Won 26 by 2½, Watawata, accumulators, Brooks saddle, Bowden lifter and brakes, Lohmann's Perfecta lamp, accessories, spares; £16 10s.—Welbury, Maisonette, Melville Road, Coventry.

3½ h.p. Minerva, spring forks and seat-pillar, Palmer tyres, Watawata belt, two accumulators, stand, footboards, all accessories, guaranteed in perfect order, ready for the road; £19.—Bentley, Wood Street, Horwich.

BRAND New, latest model, low frame, 1907 Quadrant, magneto, cost with extras 50 guineas net cash, faultless; accept £39; great bargain; approval, or seen by appointment.—Apply, 34, St. John's Road, Clapham Junction.

QUADRANT, 1905, 2 h.p., surface, spring forks, spare belt, Clincher A Won tyres, stand-carrier; to anyone wanting reliable, comfortable machine, in splendid condition, this is a bargain at £11.—W., 54, Vineyard, Richmond, Surrey.

3½ h.p. 1907 Triumphs.—Having contracted for a number of these famous machines, we are prepared to make liberal allowance for second-hand machines in part payment.—Wauchope's, Bishopsgate Avenue, London.

1906 Zenith, 4 h.p. Antoine free engine, clutch, Whittles chain belt, Longuemare carburetter, Clincher tyres, Brooks B100 saddle, perfect running order, most reliable, cost over £45, accept 20 guineas; seen any time.—16, Camberwell Road, S.E.

MOTOR Cycle and Sidecar, 3 h.p. Fafnir (1906), M.O.I.V., Chater-Lea frame and fittings, Clincher A Won tyres, spares—belt, pulley, accumulator, etc.; £27 10s.; condition as new, never had involuntary engine stop.—Monkley, The Rosery, Westbury-on-Trym, Bristol.

3½ h.p. Brown, £14; 2½ h.p. Triumph, £12, both in good order; 2¾ h.p. Humber engine; 2½ h.p. Jap, with carburetter and silencer; wanted, two-speed, for tricar, any condition; offers for above, or exchange.—Milroy, St. Mary Cray, Kent.

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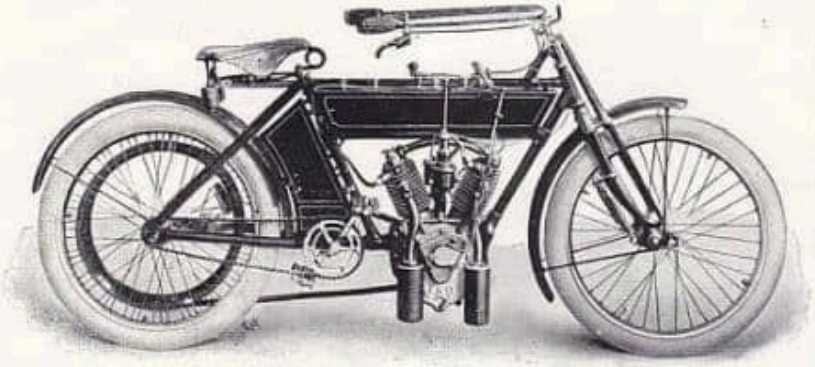
3 h.p. Royal Riley, fast, powerful machine, very low, Clinchers, stand, all tools, spares, condition as new, perfect running order; cost a year ago £45, accept £17 for quick sale; any trial, or approval.—Motor, 5, Lorrimore Buildings, Walworth, S.E.

A. S. QUICK, Cycle and Motor Engineer.

Telegrams: Quick, Motors, Honiton.

Our speciality: MOTOR CYCLES, TRI-CARS, Etc., built to order.



MOTOR CYCLE SPECIFICATION—TOURING MODEL—*(as illustration).*

Engine—Twin cylinders, 6 h.p., J.A.P., or 5½ h.p. Peugeot.
Frame—18½-in., very lowest can be made.
Wheels—26-in. x 2½-in., plated. 2½-in. chain line.
Hubs—Eadie Coaster and large front.
Engine Pulley—4-in or 3-in., to order.
Belt Rim—13-in., plated.
Belt—Watawata, 1-in. wide.
Brake—Vim, back rim.
Carburetter—Longue mare.
Accumulators—2 x 20 ah. Sphinx or P & R
Coil—Eassee Michel, plain.
Switch—2 way, also on handle bar.
Control—(Handle bar) with vim mechanism 10 levers on tank.
Handle bars—Extra long.
Saddle—Extra large, over back wheel, plated springs.
Pedals—4½-in. rubber.
Forks—Spring, girder type.
Tyres—2½-in. Dunlop. Other makes to order.
Speed—6 to 60 miles per hour.

Price **£50**

We can supply Motor Cycles from **£20**

Two Engine Clutches and Two-speed Gears, extra.

MOTOR REPAIRS

PETROL, OIL, GREASE, Etc.
ACCUMULATORS kept ready for use.
COILS, PLUGS, BELTS, TUBES, etc., always in stock.

VULCANISING

Accumulators Charged.

We are opening a
GARAGE Close to Works shortly.

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SPRING
FORK
for
MOTOR CYCLES.

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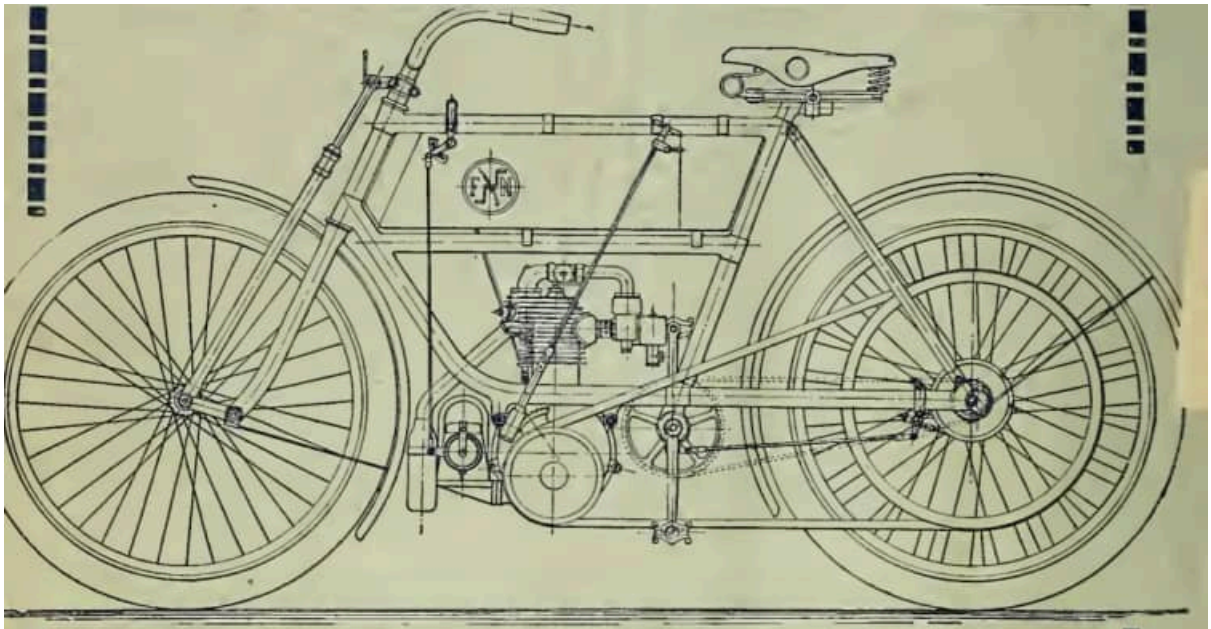

THE MACHINE OF GRACEFUL OUTLINE.

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MOTOR CYCLE
COAT
Real Irish Frieze,
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THOUSANDS IN USE.

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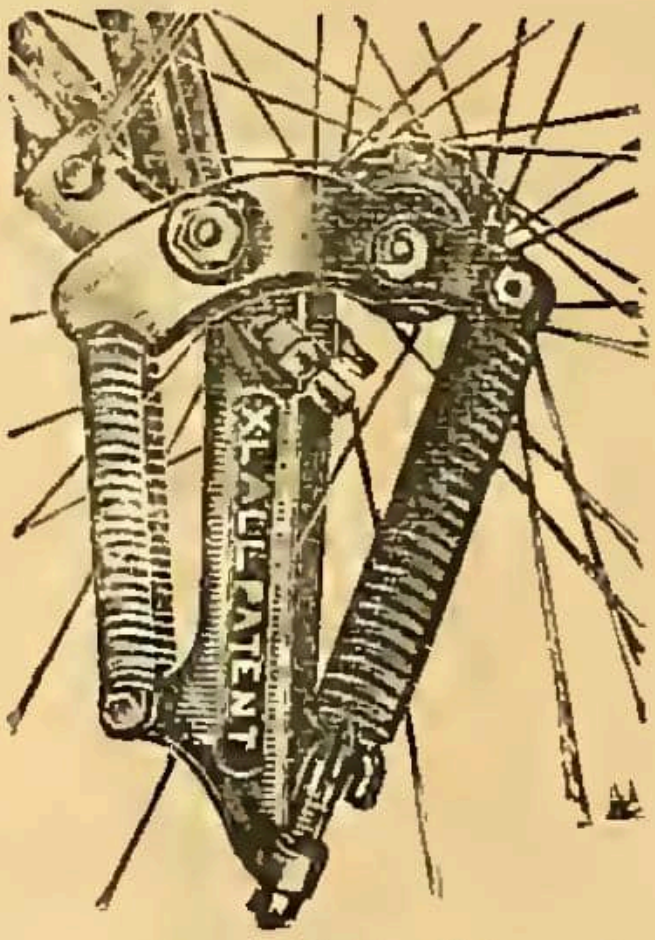

No side play whatever.

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per pair.

Ride in ease and comfort.

No motor is safe without them.

The Eclipse Motor and Cycle Co.,

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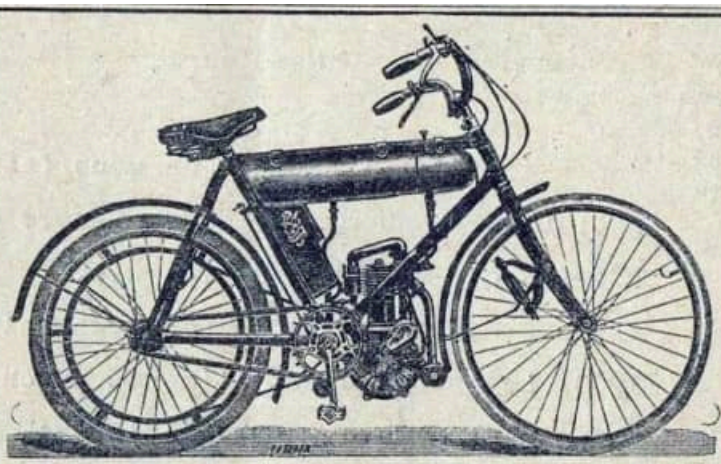

La

Bicyclette à pétrole

ALCYON

1 1/2 ch.

est un

instrument pratique

ayant fait ses preuves.

Elle est malgré son poids réduit (35 kilos) assez puissante pour monter toutes les côtes.
Elle est très simple et d'un entretien facile.

ALCYON construit également une moto légère 40 kilos, qui a été classée 1re dans le "Tour de France" 2.600 kilomètres, organisé par l' "Autocycle-Club de France".

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La Motorette

TERROT

munie d'un petit moteur

H. et A. DUFAUX

est une bicyclette à moteur légère
d'un rendement merveilleux.
Elle forme un ensemble homogène
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Nous la livrons avec allumage par magnéto
ou par accus
avec cadre de 53 ou 57 cent. de hauteur.

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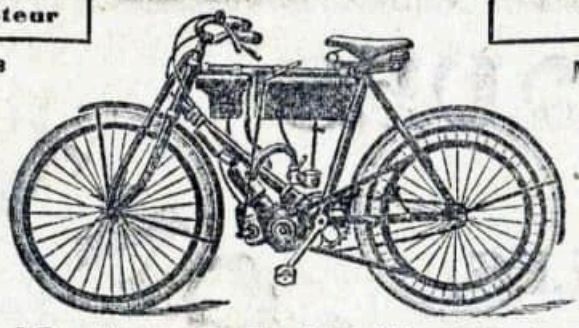
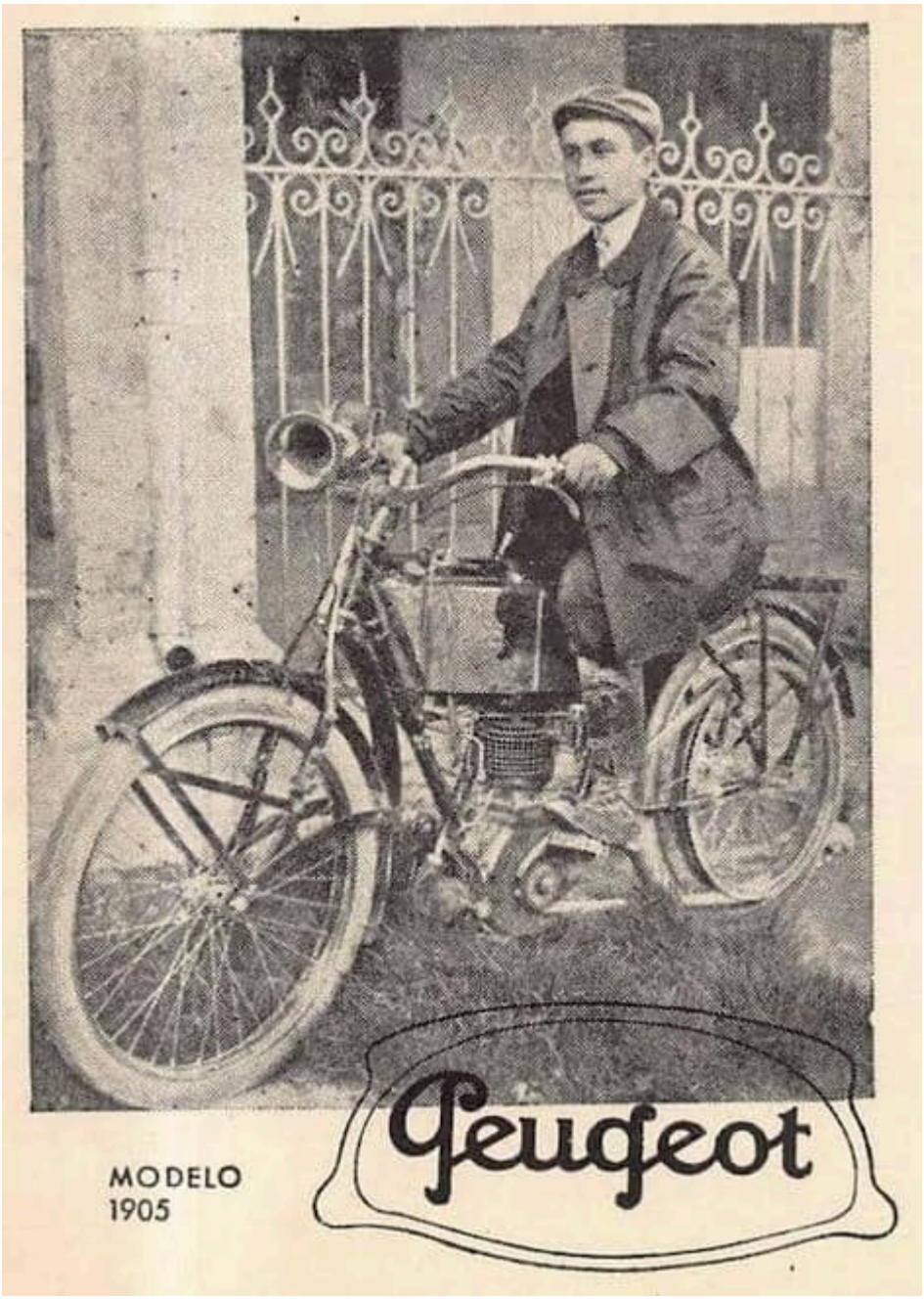
MÉTRO : GAMBETTA

Magnetos

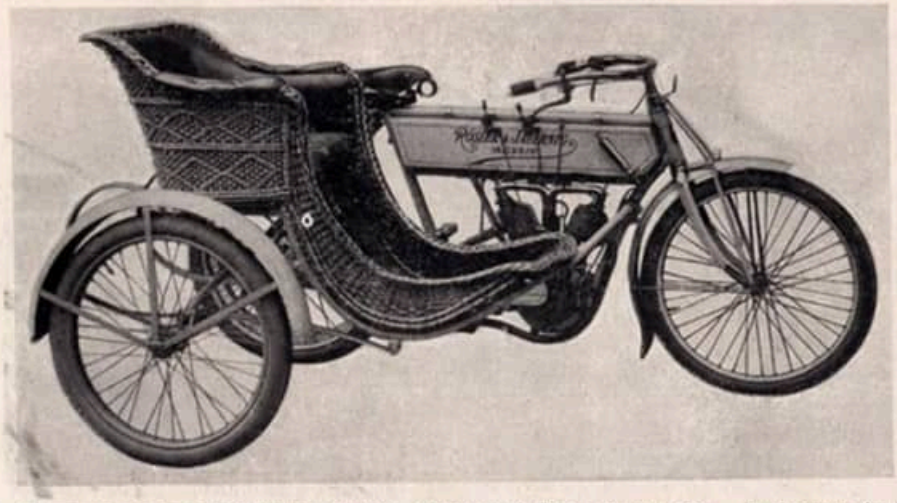


Accumulateurs

Dépot : 18, Avenue de Neuilly (Porte-Maillot)

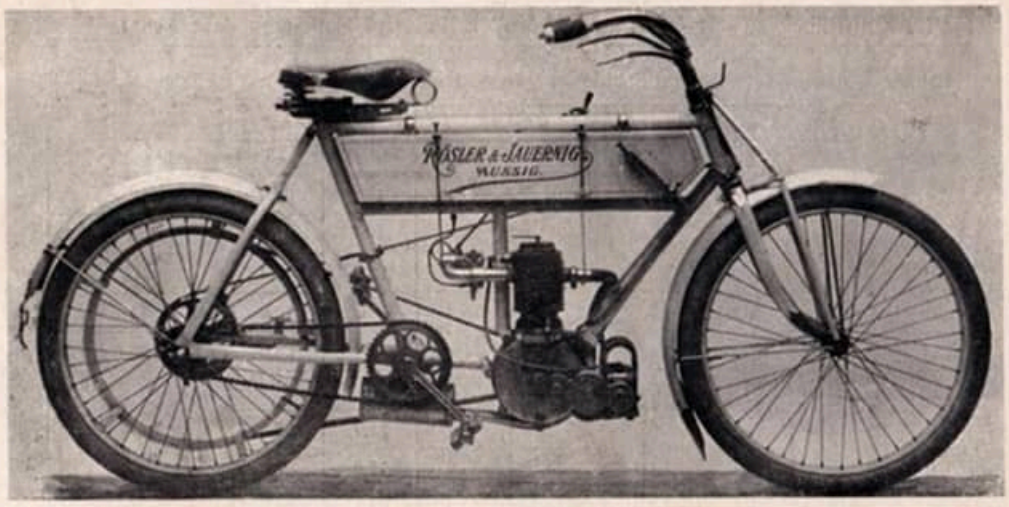

Peugeot
MODELO
1905

„Rösler & Jauernig"-Motorrad-Beiwagen. Mod. A. 07.



Mod. A. Beiwagen mit Korb und Kniedecke wie Abbildung. Preis: Kronen 275.— in eleganter Ausführung Kronen 300.— in allerfeinster Ausführung.

Rösler & Jauernig-Motorrad



mit Original **„Zedel"**-Motor und Original **„Bosch"**-Lichtbogen-Zündung.

PEUGEOT

PARIS-OSTENDE (Motocyclettes)

Catégorie motos légères. 1er MOREAU
Catégorie tiers de litre.. 1er GIUPPONE
Classement général..... 1er GIUPPONE

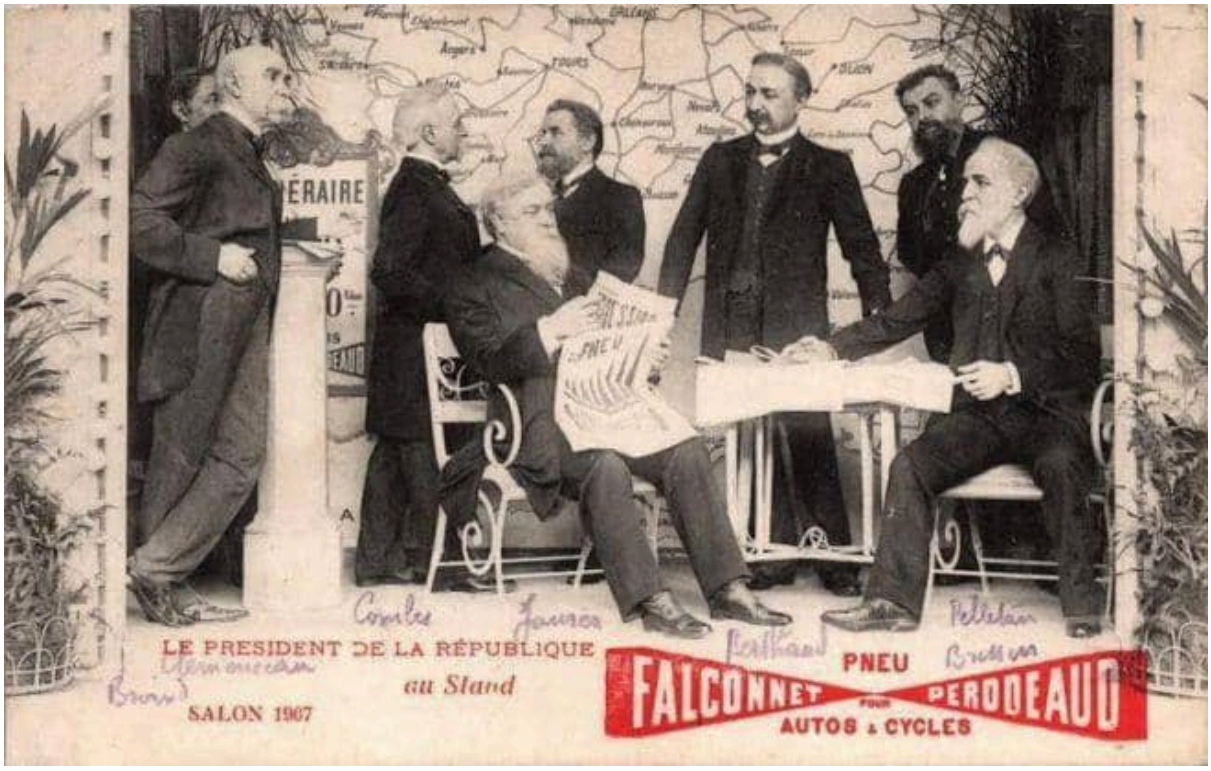
TOUS SUR

Peugeot, Pneus Lion

Les Fils de PEUGEOT Frères

Usines à VALENTIGNEY, TERRE-BLANCHE, BEAULIEU (Doubs)
Maison à PARIS : 38 *bis*, avenue de la Grande-Armée, PARIS

MEMBRE DU JURY — HORS CONCOURS A L'EXPOSITION UNIVERSELLE DE 1900.


Combes
Jaurès
Loubet
Fallières
LE PRESIDENT DE LA RÉPUBLIQUE
au Stand
SALON 1907
PNEU
FALCONNET
PERODEAUD
AUTOS & CYCLES

1908

THEPIERCECOMPANYofBuīalo, NYwas well known for making bicycles and cars, came up with a ‘vibrationless’ motorcycle powered by a (425cc) four-pot engine based on an FN that the company owner’s son had bought during a trip to Europe. Theframe was made of 3½in tubing, copper plated on inside, which acted as a fuel tank with a capacity of 1.45 gallons; the front forks had coil-spring and air suspension. Claimed consumption was about 100mpg with a claimed speed speed rangeof 5-60mph.

Pierce came up with the □ðrstAmericanfour.

“AMERICANCROWDSaremore than unruly. Neither police, special constables, nor volunteers with unloaded ri□ðesservedtokeep the throng back [at the Vanderbilt Cup Race]. But a few motor bicycles continually driven as fast as possible with cut-outs open, at anyonewho happened to be in the way, were he spectator or constable, worked wonders. Theeīect was quite wonderful, and the crowd just melted away.”

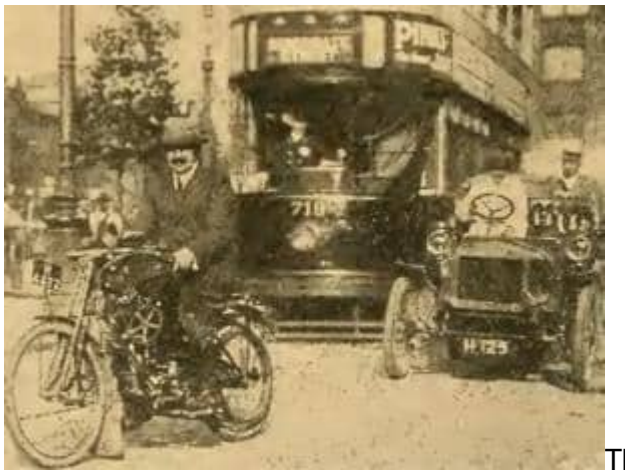
JAPSTOPPEDBUILDINGcomplete motorcycles to focus on its engines.

“THE 1907 STANLEYSHOWhasmadeit quite clear that a really eīicient lightweight, low-powered motor bicycle must be in future added to the popular and successful classes. Thisis a great advance, and it is obtained by two parts of the machine. Theengine is a great deal more eīicient, and very light and eīicient magnetos have been substitute for small batteries…Several of the light machines now on the market are thoroughly reliable and eīicient touring mounts.”

“WE AREDECIDEDLYofthe opinion that French grey is the best colour for motor cycles,” the Blue‘Un opined, “as it does not show the dust or dirt anything like black enamel or aluminium. A motor bicycle nicely □ðnishedinFrenchgrey looks just as smart as any other colour…wehave seen several new motor cycles □ðnishedinFrench grey recently.”

FREDDIEBARNESuseda JAPV-twin in the Zennette (soon renamed Zenith) Gradua. It had an eīective variable-speedtransmission. A‘coīee grinder’handle on the tank opened and closed the split enginepulley and simultaneously slid the rear wheel backwards and forwards to maintain drive-belt tension. This gavethe Gradua such an advantage that some organising clubs

banned Graduas from their hillclimbs. Zenith gleefully adopted a prison-bar transfer with the legend "Barred!"

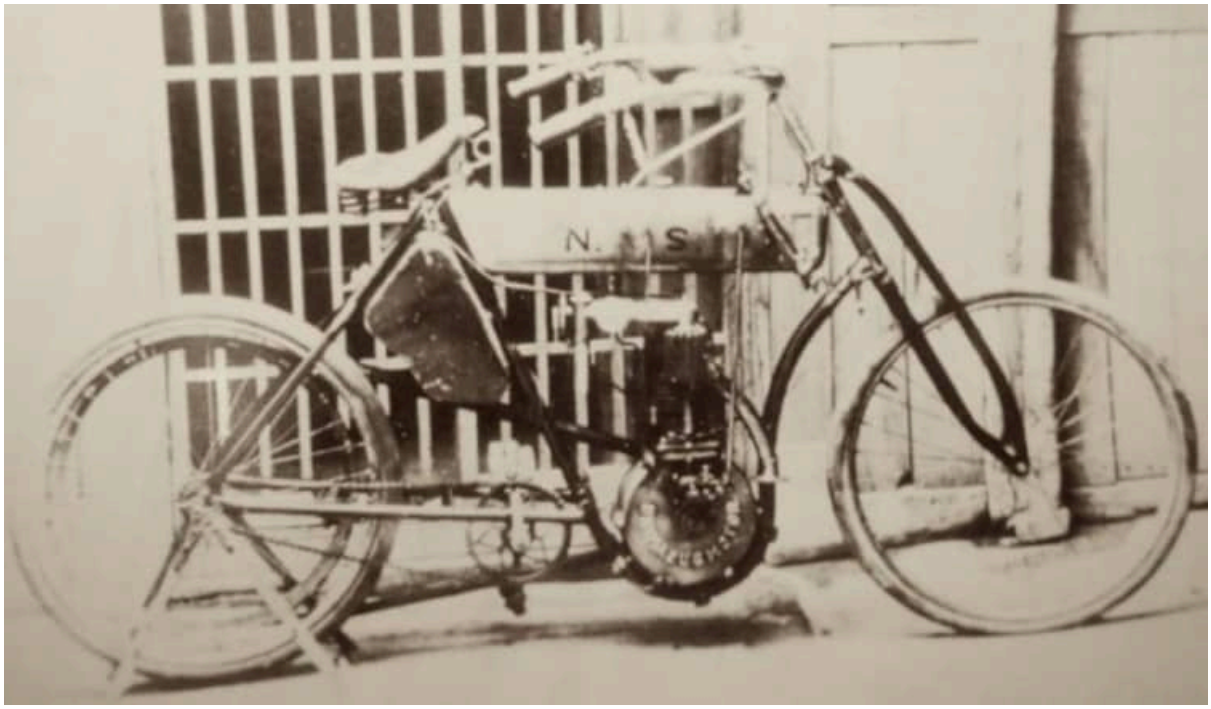

The Zenette's revolutionary Gradua transmission under observation from The Motor Cycle's staīcar.

TO PROVE IT S advantages in urban traīic Zenith's MD, WG Bower, rode a a 3½hp Zenette, followed by a Motor Cycle staīer, "through the densest traīic we could □ðnd, without stopping his engine or leaving the saddle. The trial was one of a nature which had never before been attempted by a motor bicycle."

Zenith made they most of the hillclimb ban.

FOR THE FIRST time the value of British motor cycle and component exports exceeded imports.

TO RAO YAMABA, who had built Japan's □ðrst car (a steamer) in 1904, built himself a motorcycle from scratch. According to legend Yamaba, who ran a small garage, was almost run down by a red-headed American on an imported motor cycle and decided he wanted one of his own. He couldn't aīord to buy a bike so he read everything he could □ðnd about motorcycles and made his own. Tagagikyo Sieka n Co made a bike using an imported Precision motor. Narazo Shimazu built a 400cc two-stroke and installed it in an adapted bicycle frame. A four-stroke followed, badged NS (AJS wasn't the only marque to use its maker's initials). But when Shimazu built and sold 20 more bikes he changed the name to NMC (Nihon Motorcycle Company). Steel tubing was a a premium so, like the prototype, the production NMCs used adapted bicycle frames, which tended to break on the primitive Japanese roads. What's more it took years to □ðnd buyers for even such a small run but Narazo Shimazu had founded the Japanese motor cycle industry. He branched out to make a cycle car, a V8 car engine and a 10hp motorboat with which he made a living taking tourists for river cruises. He also tuned up an imported aircraft engine and set up Japan's □ðrst driving school. After which he sensibly returned to motor cycle design so we'll meet him again.



Narazo Shimazu's NS marked the beginning of the Japanesemotor cycle industry.

"WITHOUTDOUBTTHEdevelopment of variable gears has been greatly hindered by the production of sound adjustable pulleys, as riders who had previously been clamouring for a variable gear of the saddle-operated, several-□ðxed-ratiotypehavefound their main needs more or less satis□ðedbyadjustablepulleys. On the other hand, the almost universal adoption of these makeshift substitutes for a proper two- or three-speed gear has taught riders the advantagesof a multi-speed gear, and thus they have been educated up to the appreciation of variable gears, and will be more ready to adopt them when improved patterns □ðnallyenterthe market."

"HEREAREAFEWof the articles oīered by various advertisers in TheMotor Cycle last week in exchangefor motor cycles: A talking cockatoo, gun, gold watch, diamond ring, drawing and bedroom suite, piano, furniture, lathe, gramophone, dynamo, musical box, violin, lantern, brazing forge, fretwork machine, pedal-bicycles, a tandem, and a motor car. An idea of the esteem in which a motor cycle is held can be gathered from the above exchangeof oīers."

NORTONBEGANselling bikes with its own engines. Model No1 was a 633cc SVsingle it called the Big Four; this model, with one or two modi□ðcations,wouldstayin production until 1954.

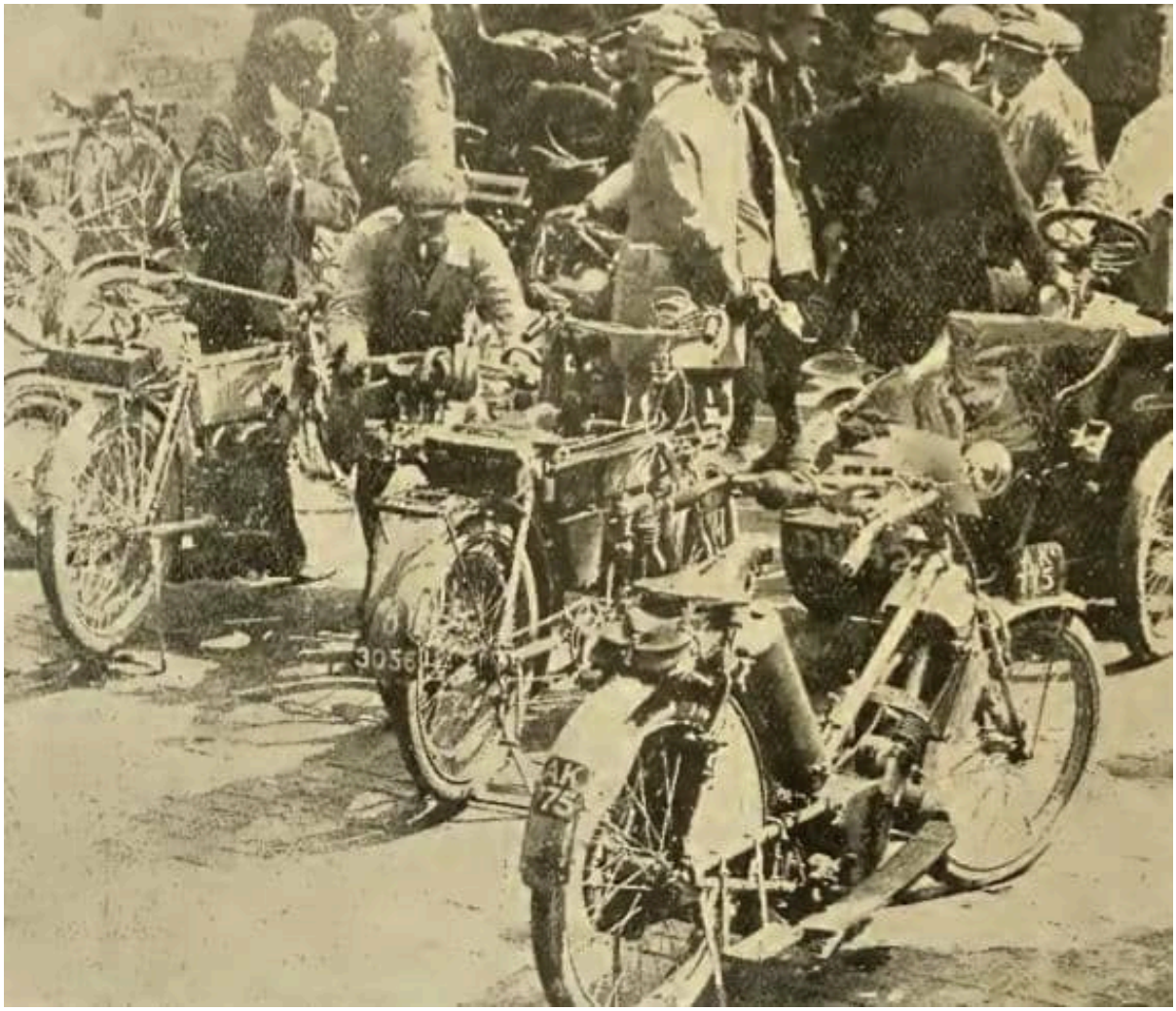
Norton □ðrstrolledits own with the Big Four.

THE2¾hp DOUGLASsported a two-speed gearbox based on the back gear of a lathe.

PEDALSWEREBANNEDfromthe TT(not least because Charlie Collier, an experienced racing cyclist, had made good use of 'lpa' during his 1907 TTwin). Silencers were mandatory, and were tested before the race; fuel consumption was limited to 100mpgfor the singles and 80mpg for the multis (from 90 and 75mpg in 1907). Imported entries included two FNfours and two NSU twins. In the event JackMarshall's sv Triumph beat Collier's ohv Matchless by two minutes in the single-cylinder class at an average38.7mph with another Triumph third, ridden by Captain Robert Arbuthnot RN. Triumph capitalized on this success with the □ðrst'TTreplica'.HReedon a Peugeot-powered DOTaveraged37mph to lead WH Bashall (Bat-JAP)home in the multi-cylinder class with ROClark (FN)in third place. Backgroundstories, correspondence and a full report on the 1908 TTwith lots of pics are in the 1908 features' section (along with a number of other jolly interesting yarns).

Marshall gave Triumph its □ðrstTTwin.

AFTERSIXYEARS'developmentwork Alfred Scott launched his 333cc water-cooled two-stroke twin with open duplex frame, kickstart, all-chain two-speed transmission and foot-operated gearchange.Scott was soon picking up hillclimbing trophies—the yowling two-stroke was condemned for being"overly eīicient" so when racing four-strokes it was given a capacity handicap. Like Zenith, Scott's advertising would make the most of this implied endorsement. Initially it was made for Scott by TheJowett Motor Manufacturing Co of Bradford but within a year he would set up his own factory.



Weighingin at a Coventry MCC hillclimb. TheScott two-stroke twin in the foreground was about to make history.

HAVINGSETTHEpattern for modern motorcycles Werner Brothers stopped making two-wheelers to concentrate on cars. Ironically a new design V-twin Werner won the □ðnalCircuitdes Ardennes.

"AMONG THEBATCHof enquiries received last week was one from a motor cyclist in Arabia, who complains that he is unable to obtain petrol for his machine, principally because he requires it in such small quantities."

"DUDLEYR CLARKEappearsto be the only British track rider to adopt the sensible Continental idea of wearing a 'casque' or leather helmet, his head-gear being a familiar object in races throughout the season. Thereis no doubt that the casque aīords excellent protection to perhaps the most vulnerable part of the rider in the event of a fall."

Dudley Clarke won an ACU race, and he did it in a skidlid.

THE PITTSBURG GLOBE reported that Harry Ryan, the six-year-old son of a Pittsburg cycle manufacturer, won a two-mile motor cycle race.

THE DUBLIN SHOW featured bikes from from FN, Minerva, Roc, Moto Reve, Minerva, Zenith (and Zenette), Fairy and Motosacoche. NSUs were on display at a local dealer.

"MISS MURIEL HIND'S performance in the recent [ACC] Quarterly Trials has been the subject of much comment in motor cycling circles. Even hardened riders did not feel at all comfortable on the atrocious roads…but the intrepid lady stuck gamely to her task, and capped all by making fastest time on both test hills. The 5hp Rex she rode was a new machine only delivered the week previously, and is □ðtted with a Roc free engine clutch."

GLENN FULTON MAY have been the □ðrst rider to □ðt a windscreen. He explained: "Before I □ðtted the windscreen I was greatly bothered with my eyes, as I am compelled to wear eyeglasses, and did not like goggles. The wind screen is □ðtted to the top bar of the frame…the screen can be □ðxed at any height or angle."

Glenn Fulton demonstrates his windscreen.

TOP THREE PLACES in a 53-mile Spanish road race went to Peugeot, NSU and Griīon.

THELIGHTSONVehicles Act came into force on 1 January, requiring lights to be carried on all vehicles at night.

ARTHURBENTLEY, riding a 3½hp Triumph, made the 886-mile run from John-o' Groat's to Land's End in 41hr 28min, beating the previous record by 7hr 8min. He even beat the car record of 42hr 5min. Bentley's recollection of the run with more pictures are included in the review of the End to End run which can be found in the 1911 Features section.

Mr Bentley set an End-to-End record.

MOTORCYCLISTSWEREBEINGrecruited by the Great Yarmouth command of the Legion of Frontiersmen. (the league was founded by Roger Pocock, a former constable with the North-West Mounted Police and a Boer War veteran in 1905 in response to fears of an impending invasion).

THEASL (AIR Springs Ltd) lived up to its name with airsprung forks and an air-□ðlledseat. An ASL rider noted that when the forks leaked, as they generally did, "the beast steered like a crab", but he praised its White and Poppe engine.

"I BEGINTODOUBTIF we English motor cyclists are taking the four-cylinder machines seriously enough. They will certainly never make strong appeal to novices, who are suīiciently timid about a single sparking plug, etc, to attend to; but the modern editions of this pattern are undoubtedly very attractive machines. The modern four-cylinder starts oī its mark with ease in the shortest possible distance and runs with a perfectly enthralling sweetness at very low speeds, while, odd as it may seem, I am unable to discover any failing in reliability as opposed to the singles and twins."

IN A SINGLE issue of The Motor Cycle optimistic advertisers oīered a talking cockatoo, a gun, a gold watch, a drawing and bedroom suite, a piano, a brazing forge, a gramaphone, a violin and a fretwork machine in exchange for motor cycles.

THEPREMIERMOTORCOof Birmingham launched the 'Premier Searchlight', "made of brass with magnifying lens at the back. The front glass is dissected in such a manner as to diīuse the light and avoid the glare common to the usual big searchlight. It has a separate carbide generator…[and] is claimed to be capable of projecting the light fully sixty yards, so that the general grumble that motor cycle lamps are insuīiciently powerful is likely to be a thing of the

past." The Premier was competing with electric lights, but acetylene lights would survive for years to come.

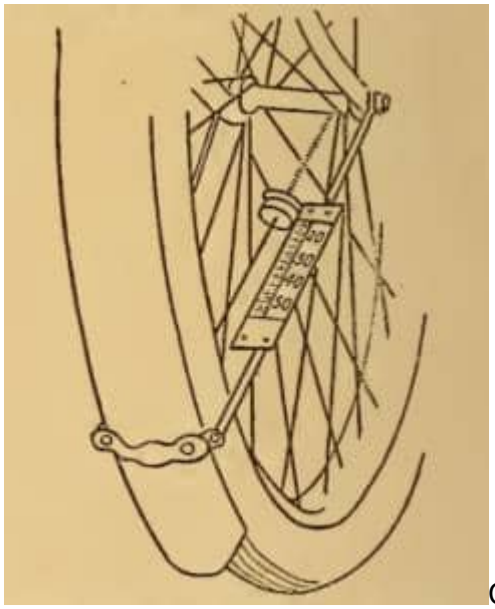
Premier (gas) vs 'Glare' (electric) headlights; gas was three time the price.

THE MONEY COLLECTED by county and borough authorities for vehicle registration of motor cars and motor cycles was in limbo because the Act requiring vehicles to be registered did not say what this money was to be used for. The Motor Union circulated a nationwide petition calling for money derived from vehicle taxation to be spent on the roads.

THE RAC MADE a deal with the Commissioners of Woods and Forests for a 99-year lease "on the old War Oïice in Pall Mall for conversion into new club premises. A swimming bath, a Turkish bath, and a gymnasium will be provided, and it is intended, if possible, to have 150 bedrooms for the use of members."

"THE PRELIMINARY REGULATIONS for the International Auto-Cycle Tourist Trophy Race are before us, and it is interesting to note that Rule 6 says that the machines entered must be touring machines without pedalling gear. Readers will remember that there was a good deal of correspondence last year with respect to the pedalling indulged in by some of the riders in this competition, and the Auto-Cycle Union is to be commended for its decision this year, viz., that no pedalling is to be allowed."

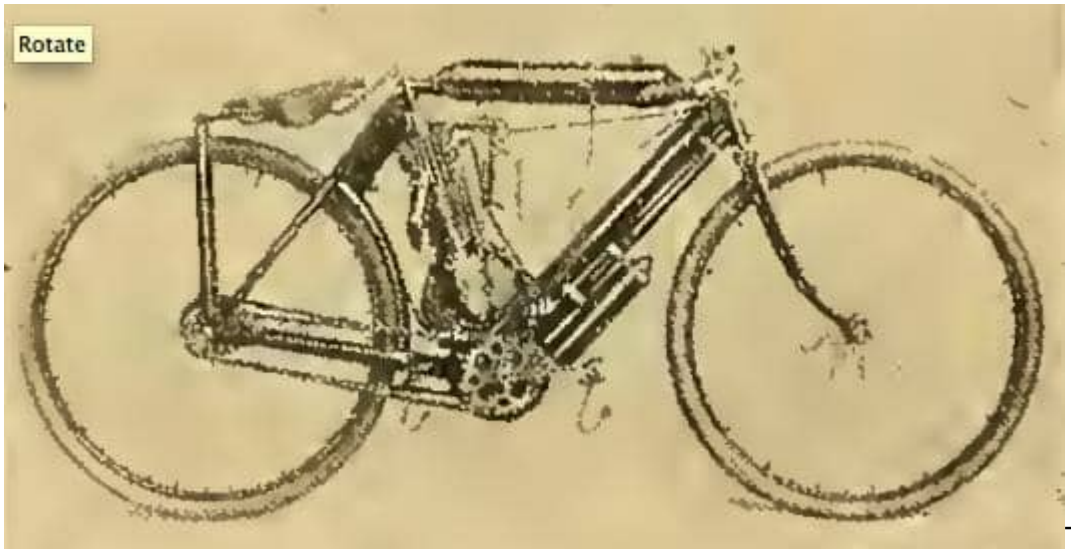
A MOTOR CYCLING fashionista advised: "Once away from the machine there is no necessity for anyone to know that the motor cyclist has been conveyed to his destination by a mechanically propelled bicycle. Strong macintosh overalls (falling well over the boots) and a coat can be slipped over ordinary walking attire; these with the aid of gloves and a silk neckerchief to keep the collar clean enable the motor cyclist to present a clean appearance at all times."


Centrifugal speed: clever idea, hard to read.

A SOUTHAMERICAN □ðrmmarketedaspeedometer based on centrifugal force. A ball was threaded loosely on one of the spoke of the front wheel and held towards the hub by a light coiled spring, which was also threaded on the spoke. As the wheel revolved centrifugal force caused the weight to travel outwards and along the spoke. Theweight had a bright ring around it; a graduated dial was attached to the mudguard stay. From the winter issue of TheMilitary Cyclist: “The motor, both as cycle and car, is now becoming such a useful asset to an army that we have decided to open our pages to the military side of motoring. We shall appear next issue as TheMilitary Cyclist and Motorist.”

THEGENERALACCUMULATORandBattery Co of Milwaukee came up with ‘Decarbonizer’, “an oily compound which, in conjunction with combustion, volatitizes carbon and all resinous matter. It removes all such substances from piston head, piston rings, valves and valve stems through exhaust–keepsentire power system clean and in prime condition and adds 20% or more power to any engine and doubles life of same…onetrial is proof or its magic power. “

IN THESTATESTHEMarshCo of Brockton, MA merged with Charles Metz’s □ðrmtoform the American Motor Company; their motor cycles were badged Marsh & Metz or MM. Their □ðrst major project was the □ðrst90degV-twinin the US. MM also sold engines to other manufacturers including Peerless, Arrow and Haverford (but only until 1913 when the company closed and Charles Metz turned to automobiles).

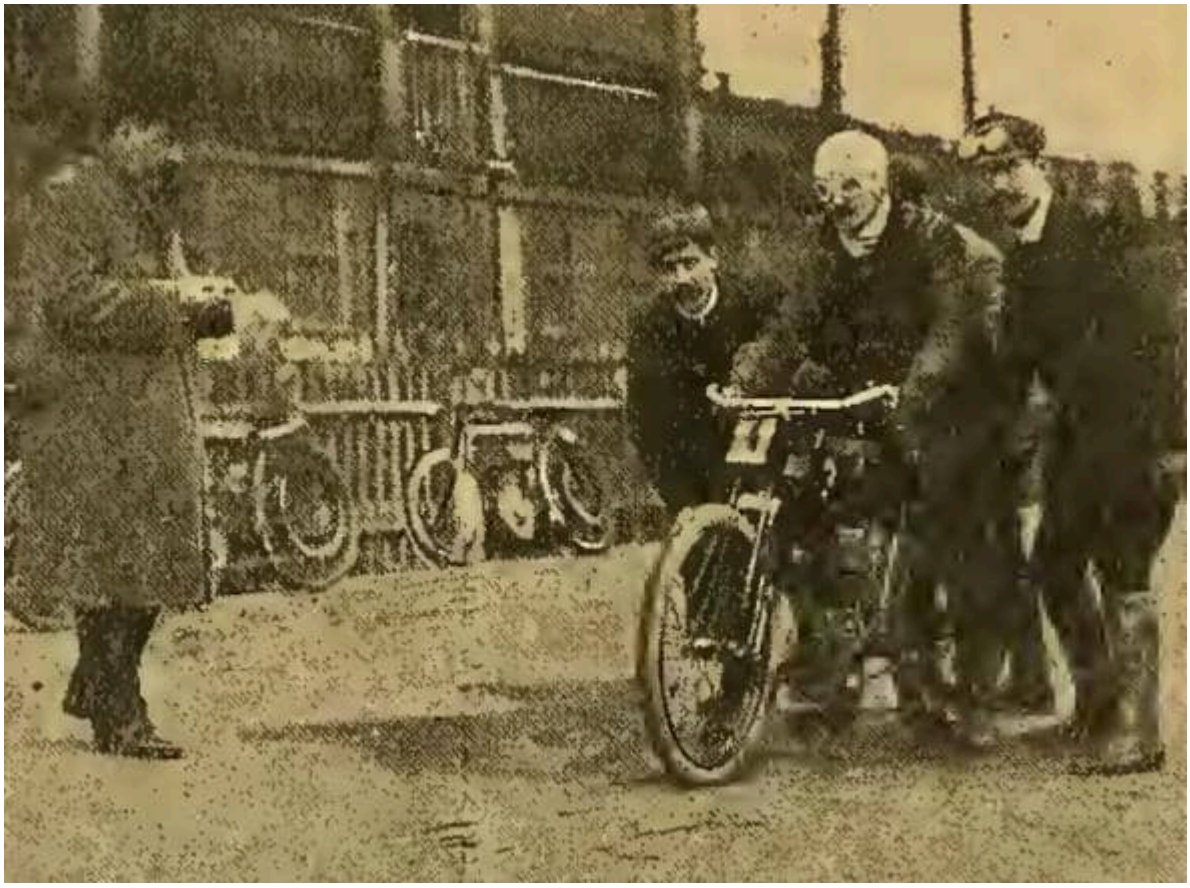


The NYPD opted for out-and-out racers.

THEFIRSTPOLICEmotorcycles were bought by the Detroit Police Department; they set a trend by choosing Harley Davidsons. A New York paper reported: “After the 1st of March the automobile speed merchants had better keep their weather eye open for the new motor cycle squad within the New York City Limits, for on that date the department will be equipped with 16 low racing type motor bicycles capable of doing 60mph, which will be driven by the best motor experts that can be picked from the motor squad now in the department. In addition to these, there will be two twin-cylinder bicycles to be used by the sergeants in charge of the squads in Manhattan and Brooklyn. The squad will then be a total of 50 members.”

Oīicer Tuthill took no prisoners.

Newburgh PD issued Oīicer William Tuthill with a Marsh & Metz (MM) Special capable of 55mph. Within 10 days he'd issued $50 worth of speeding □ðneswhichwasmore than half the alue of the bike. Maybe it's a coincidence, but before long the Boston PD bought 17 MMs "to check scorchers" and the Massachusetts State Police were issued with 13 "for the suppression of furious driving". Back in Blighty the Cheshire County Constabulary recruited 40 extra PCs "due to the complaints respecting inconsiderate driving of motor vehicles". But they would have to rely on stop watches and hidden speed traps; British bobbies would have to wait some time for motor cycles.



Harry Martin at the start of his successful bid on the six-hour record.

HARRYMARTIN,RIDINGCharley Collier's 1907 TTwinning 3½hp Matchless-JAP, set a six-hour record of 244 miles and 1,650 yards at the Canning Town track. The previous record (228 miles and 250 yards), set by FW Chase at Crystal Palace, had stood since 1902. Martin also set a 200-mile record of 4hr 42min 3sec (almost 41mph), beating his own 1906 record of 5hr 4min 12sec. It was bitterly cold with a strong NE wind and several hailstorms; at one point, during a stop to tighten the drive belt, Martin was rubbed down to restore his circulation. Despite all Martin's courage a sheer grit he didn't keep the record for long. OC Godfrey went to Canning Town with his TTmodel 5hp Rexand extended the record to 268 miles 25 yards.

OC Godfrey set a new six-hour record

“ON THURSDAYLASTthatskilful and daring rider of Matchless motor bicycles, CR Collier, made an attempt at breakingthe hour record at Brooklands with no small amount of success. At the end of the hour Collier had covered 70 miles 105 yards, thus establishing the ðrstmotorcycle hour record on Brooklands Track, and beating the world’s record by 6 miles 787 yards. [Thus Charlie Collier became the ırst rider on the planet to cover more than 70 miles in an hour—ıve years after Harry Martin covered more than 60 miles in an hour—Ed.] Theprevious record was made by the Italian Giuppone on a 12hp twin Peugeot on the Parc des Princes track, Paris, on December 9th, 1905. He covered 63 miles 1,078 yards.”

Meanwhile Giuppone was strutting his stuī with a 115kph (71mph) run at the Saint Barbe hillclimb.

PS: “THE ACU COMPETITIONSCOMMITTEEatitslast meeting had before it the claim for the Hour Motor Cycle Record recently made at Brooklands by CR Collier. The distance originally returned was 70 miles 105 yards, measured from the 50ft line; but as the Union rules stipulate that motor cycle records made at Brooklands shall be taken from the 10ft line, the committee has decided that it can only recognise the distance as 67 miles 1,655 yards, which record has been duly passed.”

AN ENTHUSIASTOFFEREDsomeadvice“for lighting a lamp on a motor cycle which may prove useful to a rider who is unfortunate enough to haveneither matches nor cigarettes when lighting

up time arrives. If he is not near any house let him remove the sparking plug, take oī the lamp, turn on the water, prop up the plug in a suitable position, jack the back wheel up, and pedal vigorously with spark lever advanced, and he will □ðndthesparkstrong enough to ignite the gas."

"HAVING BEENA constant reader of The Motor Cycle for the past three years, I beg to take exception to the article in the issue of January 1st, "Motor Cycle Records, 1907", compiled by Mr JSinclair. Since H Rignold made his world's record for one mile □ðyingstartatBrighton, July 20th, 1905, in 46.5sec, I broke this record on the 14hp Simplex- Peugeotat Ormond Beach, Florida, on June 25th, 1907, covering a mile (□ðyingstart)in44.6sec. On August 2nd, at Providence, RI, during the FAMMeet, I covered a mile on the same machine in 44.6sec, nearly equalling my Florida record. In the 500cc class for single- cylinder machines, an American machine evidently holds the world's record for one mile straight away (□ðyingstart)in56.5sec. As American records should have the same recognition as other records, I hope to see my letter published in an early issue of The Motor Cycle."
Wm H Wray, Jun, New York, USA
[The ACU subsequently told Mr Rignold that it did not recognise records created in America, so his record stood.]

The New Era Auto-Cycle shared innovations with the latest European models.

THENEWERAGASEngine Co of Dayton Ohio started production of the New Era Auto-Cycle, to a design patented by EL LeFevre. Its 3½hp engine had a starting handle in place of pedals with a two-speed transmission and free engine. The manufacturer pointed out that this allowed "the motor to be started while the Auto-Cyle is stationary and in cases where the motor is not working perfectly and the rider wishes to ascertain the cause, he can do so without mounting." The throttle, choke, spark advance/retard and valve lifter were all controlled from the handlebars and a stand "supports the machine while repairing a tyre". These were all unusual features on the American market. The pressed-steel padded seat, mounted on three coil springs, "is anatomically correct in principle, rendering saddle-soreness or saddle fatigue entirey unknown to the rider of the New Era."

FORTHESECONDyear running northern bike clubs gathered at Richmond, Yorks. Some 200 clubmen rode in (up from 150 in 1907)representing the Newcastle, Leeds, Bradford, Hull, Sheīield and Hallamshire, Middlesbrough and Hartlepool MCCs. Instead of a simple social

gathering the clubs held a conference in Richmond Town Hall; the main topic was the northerners' relations with the ACU. They decided to make the Richmond meeting an annual event. Before long clubs in the South and Midlands were planning their own regional rallies.

Northern riders rallied at Richmond; clubs Midlands and South were keen to follow suit.

"THE SUGGESTION IN The Motor Cycle, viz, that a small tank might be □ðttedtoa convenient part of the frame to contain paraīin and a small pipe with a tap led from it to the compression tap for the purpose of injecting paraīin without having need to use an oilcan, appeared to me to be so highly practical that I at once took steps to have it carried out on my 3½hp magneto machine, with which in this cold weather I experience some little diīīiculty in starting. The 'tank' was formed out of an empty cocoa tin clamped to the down tube below the saddle, and a small copper pipe about 1/8in bore runs from the bottom of this along the lower horizontal tube of the frame, with fastenings thereto, below the petrol tank to the compression, tap. A brass tap is placed immediately at the base of the paraīin tank, and the whole arrangement looks exceedingly neat, besides being a great boon from the utility point of view. The □ðrst day I had it on the machine I was returning from Dunstable to London, and when about two-and-a-half miles on the farther side of St Albans I came to a standstill with an empty petrol tank. It is a long and trying climb into St Albans, and I should have had to pay the penalty for my neglectfulness but for the presence of the little paraīin supply. By means of letting about a thimbleful or so of the paraīin drip into the cylinder through the compression tap, and then jumping quickly into the saddle, I was enabled in a series of sprints interspersed with injections of paraīin between each to ride up the hills instead of painfully toiling up them pushing the machine. The cloud of smoke given oī from the engine was only a temporary inconvenience, and much to be preferred to the painful alternative. Each sprint took me about one hundred yards, and the power was ample. 'Grati□ðed'"

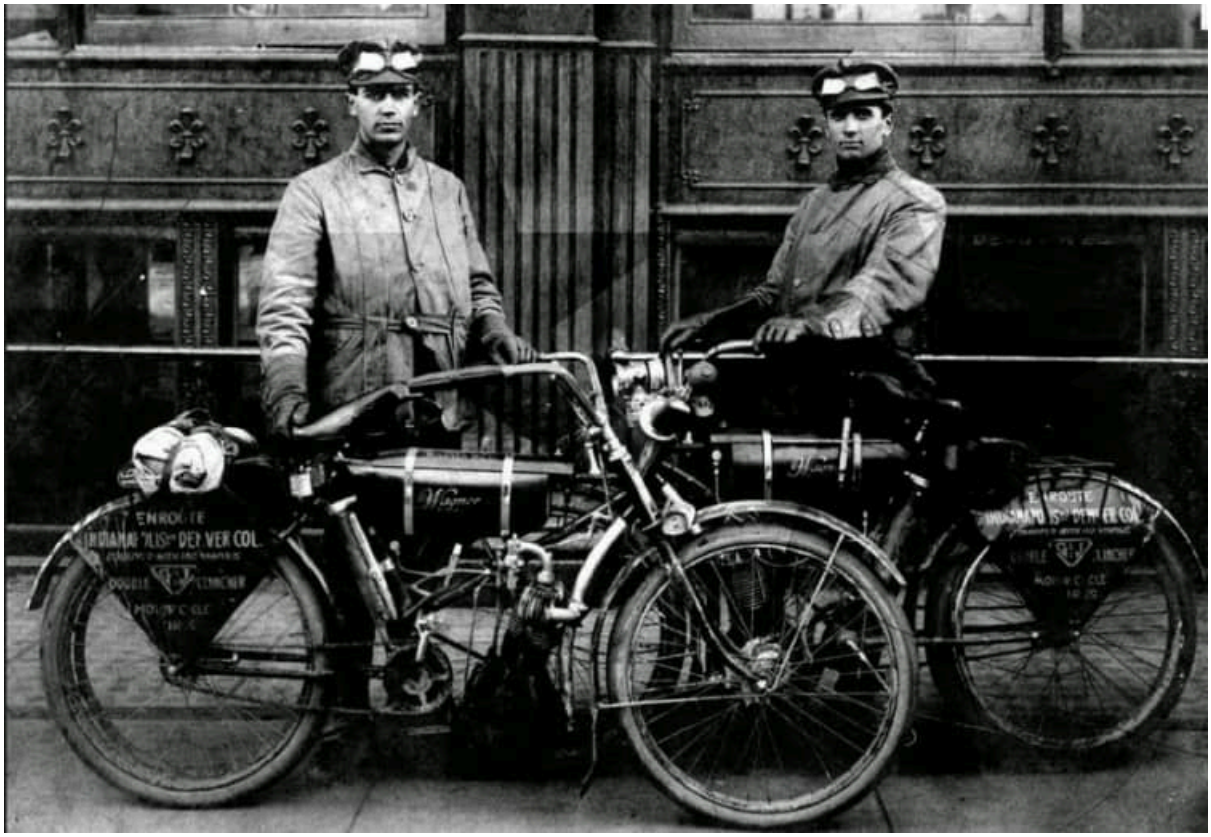
BA Swenson rode his Indian from New York to Chicago.

"ALMOST AT THE dropping point from loss of sleep, bronzed and weather-stained but exceedingly jubilant, BA Swenson dashed into Chicago…" Swenson had just ridden his Indian 1,112 miles from New York in 49hr 40min. Bob Stubbs, on a 5hp Indian, set a world 200 mile record in 1hr 47min 44sec on a mile dirt track at Birmingham Alabama. "With great satisfaction we record the establishment of a new world's motorcycle record for 100 miles by a Yankee rider on a Yankee machine. May we continue to build the machines here that can turn the trick so neatly.

Bob Stubbs set a world record on his Indian.

IN THEUSTheMotorcycle Illustrated looked back two years to its □ðrstissue:“Motorcycles, crude and noisy machines that they were, did not appeal to the public, but as improvements were made and nuisances abated the populace began to notice the littlebrother of the auto…nowthere are some dozen or more fully capitalized and equipped manufacturers in the □ðeld…”Themagazinelistedthem, cautioning its readers, “The order in which the machines are pictured has absolutely no reference to their merits or worth.”: Manson (used Thor engines); Thor; Crouch; Torpedo; Apache (Thor engines); Thiem; Harley Davidson; Royal; Auto-Bi; Armac; Erat; Merkel; Excelsior; Triumph (Thor engines); Curtiss; Indian; Geer; Hilamen; Mayo; Reading Standard; Light; Marsh & Metz (M-M); Yale; Wagner; Reliance; and Styria. Theyfaced European competition from Vindec, FN, Minerva and NSU. (Harley produced 450 bikes by year’s end).

Ray Seymour, aboard his formidable V-twin Thor at the Agriculture Park dirt track in Los Angeles in 1908. Brakes were clearly considered unnecessary. Later in the year Howard Shafer gave Thor its greatest sporting success, seting a series of records during a one-hour race in which he covered 56 miles 600 yards.



George Wagner had been making motor cycles for seven years when these two stalwarts (who seem to be twins) took a 1,000-mile ride from Indianapolis to Denver. Two years later George and his daughter Clara (who had become the FAM's □ðrstfemalemember in 1907) rode in the 365-mile Chicago-Indianapolis Western Endurance run and made perfect scores. Thejudges promptly disquali□ðedClarabecausemotorcycling was too dangerous for women—the other competitors clubbed together to buy her a gold medal.

Greer 4hp twin 'Green Egg'.

Crouch 3hp Model A.

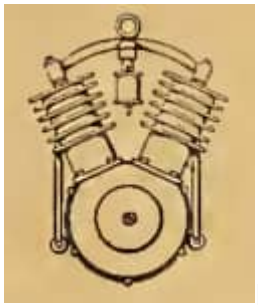
“HAVING MADESEVERALFrenchtours with a passenger mounted over the back wheel, I was especially interested in a photograph of a passengercarried on an impromptu seat on the rear luggage-carrier,with no handle-bar or footrests, beyond the steps. I am sure he would have derived a lot more comfort and pleasure had he been mounted upon a proper tandem attachment, with a handle-bar, pedal rests □öttedlower,anda roomy, well-sprung saddle. As it is, I wonder how the carrier stood the strain. I believe I can claim to be the originator of this method of passengercarrying, as six years ago I designed a simple and easily-detachable tandem seat. This my local □örmbuiltup at a cost of 25s, using ordinary Chater-Lea lugs and ‘bicycle’ tubing. It has been on four machines, and is in use today…Not only is it a much more comfortable and safer seat than a carrier, but after a little practice the passengercan mount or dismount at any speed up to 20mph. My passenger has made more than one □öyingleapinthe case of a tyre burst, thereby perhaps saving a spill. Two speeds are unnecessary, owing to the passengerbeing able to assist in starting. I have started half-way up Westerham and similar hills quite easily in this manner, with pedalling and a vigorous push from the passenger. ‘CMF’”

Louis Steinhauser got oī to a □öyingstart.

LOUISSTEINHAUSERwasdescribedas “the new aspirant for racing honours” after his debut performance at the Philadelphia MC’s Point Breezemeeting on a standard 3½hp Bradley. Having won the □ðve-milenoviceraceSteinhauserwas runner-up in the 10-mile ‘strictly stock machine’ race, second againin the 10-mile, 500cc ‘Australian pursuit race’ and an honourable third in the 25-mile unrestricted race.

MAGNETS“AMONGTHEmostsuccessful mechanically propelled bicycles in Germany”, arrived in England.A 5hp ohv twin came with two magnetos; its 3½hp stablemate was available with a sidecar “and a special form of supplementary handle-bar to enable the driver to sit in the passenger’sseat and control the machine when he so desires”.

“THE MOTORCYCLETRADEin America appears to be □ðourishing.TheNSU Motor Co has recently opened American headquarters at 206, West 76th Street, New York, and Minerva motor cycles havebeen added to the list of Continental machines represented everthe water.” Indian had boosted annual production from 2,500 to 3,500.


Rem Fowler’s watch-fob model of his TTengine.

REMFOWLERMADEabrass model of the Peugeot V-twin engine that powered his Norton to victory in the □ðrstTT.Itmeasured7/8×3/4in complete with moving engine pulley, cams, and valves. Remhad it gilded and □ðttedwitharing for attaching to his watch chain. “The whole was turned on a clumsy brassfounder’slathe with 6in. centres, the parts being so small that at times Mr Fowler says he could hardly hold them for working, and several of them got lost. Theexhaust valve springs are made of hard drawn German silver wire. Thecarburettor is an exact imitation of a Brown and Barlow, and there is a chain sprocket on the half-time shaft for driving the magneto.”

CAVEATEMPTOR:“Neverimaginethat you can obtain an article for £5, the market price of which is £10. If you see advertisements oīering well-known makesof machines or accessories at absurdly low prices, ie, about half what you havepreviously understood to be their market value, do not part with any cash without □ðrstofallexamining the articles…machines have been oīered at a ridiculously low □ðgure,andoninvestigationthe description has been entirely wrong.”

A MOTORCYCLINGLAWYERwarned:“Shouldanyone know of a police trap in his district he would havebeen quite at liberty 12 months agoto warn the unwary motorist of the same, as the Court has decided that by so doing a person did not obstruct the police in the pursuance of their duties, but a phrase from the lips of Lord Chief Justice Alverstone, which was pregnant with meaning and suggestiveness,is worthy of note, viz, ‘That the obstruction of a constable in the execution of his duty need not necessarily be physical obstruction.’.”

Eyquem spark plug, tap and immobiliser .

GAMAGES MARKETED the Eyquem sparkplug. “The central core terminates in a □ðve-pointed disc, which forms the gaps across which sparks jump to the body of the plug. The central core is hollow, so that on turning the [integral] wooden handle the compression tap is opened and paraïin may be injected into the cylinder…an iron wire attached to the spindle of the tap may be turned downwards, so that the current passes direct from the high tension wire to the frame, thus cutting out the ignition, preventing unauthorised persons from starting the machine”

IXION NOTED: “Some youthful riders take a delight in swaggering along at high speed with one hand on the throttle, and only holding the steering bar straight with the palm of the other hand. This is courting a sudden and rather abraded exit from this world of trouble.”

REX ADVERTISED FOR “experienced mechanics for a night shift to cope with demand”.

“A FRENCH ARMY OFFICER, Commandant Pein, has caused somewhat of a sensation in sporting and military circles in France by announcing his intention of crossing the Sahara on a motor bicycle.”

The Luders Brothers wowed them in Berlin.

HIGHLIGHT OF THE Berlin Cycle Club’s silver jubilee celebrations was motor cycle stunt riding by the Luders Brothers. The act included one Luders standing on the other Luders shoulders and riding in a circle side by side with both riders seated backward. Their chosen mounts were Motosacoches.

“I HAVEA BONEto pick with your wicked paper. Some three years ago I was a happy and contented man, but then ill-luck caused me to listen to the idiotic talk of a motor cycling friend, and to read various numbers of his copy of The Motor Cycle. The result was a 2hp ———— (second-hand) which gave me all sorts of trouble, and ought to have cured me once for all of this madness, but I still read this evil paper and a 3½hp was the result. Dirty hands, electric shocks, bad temper, came on as before, but I still read on, and a ———sidecar added terribly to my agonies. I became everybody’s slave, and a ‘paying’ chauīeur for every wretched visitor. Still, I read your collection of infamies, and invested in a two-speed gear. Then life became a burthen, and I was compelled, and, alas! am still compelled, to drive ladies about wherever they want to go, take them shopping, and escort male visitors to and from the station, sometimes with heavy bags, through all weathers. I take good care that nothing goes wrong, but now and again one must get a new belt, which stretches, as you know, and when going to or from the station I have to get oī, and with muddy, frozen □ðngers shorten the belt and listen to the compassionate remarks of passengers about the bother of motors. Then, ah! then, it is diīicult to refrain from saying and doing regrettable things. Now you will say your victim is escaping; he will sell his accursed omnibus and be happy once more. Alas! No! He is waiting with impatience for the arrival of a 5hp twin, which only the fortunate lack of funds will prevent being □ðtted with a magneto, two-speed gear, and handle-bar control. Thank goodness, your power ends with motor cycles, and when some day—may it be distant yet—I am seated on a 9hp twin, with sidecar, and furred and goggled passenger by my side, driving at awful speeds through mud, and snow, with every appliance that diabolical ingenuity can suggest □ðtted, then you will be satis□ðed. And so shall I.
Mohun A Trenchard.”

LAUNCHEDATTHE Turin show, the Laviosa Autocicletta featured stabiliser wheels which were raised by depressing a pedal once it was under way. It featured a two-speed transmission, optional fan cooling and handle starting.

The Autocicletta featured retractable stabiliser wheels.

“WATEVERMAYBE the preferences of a scant handful of individuals, one has only to peruse The Motor Cycle Buyers’ Guide to see that for motor bicycle purposes, apart from the haulage of a

passenger,the belt has altogether ousted the chain, and this is by the united verdict of both manufacturers and users."

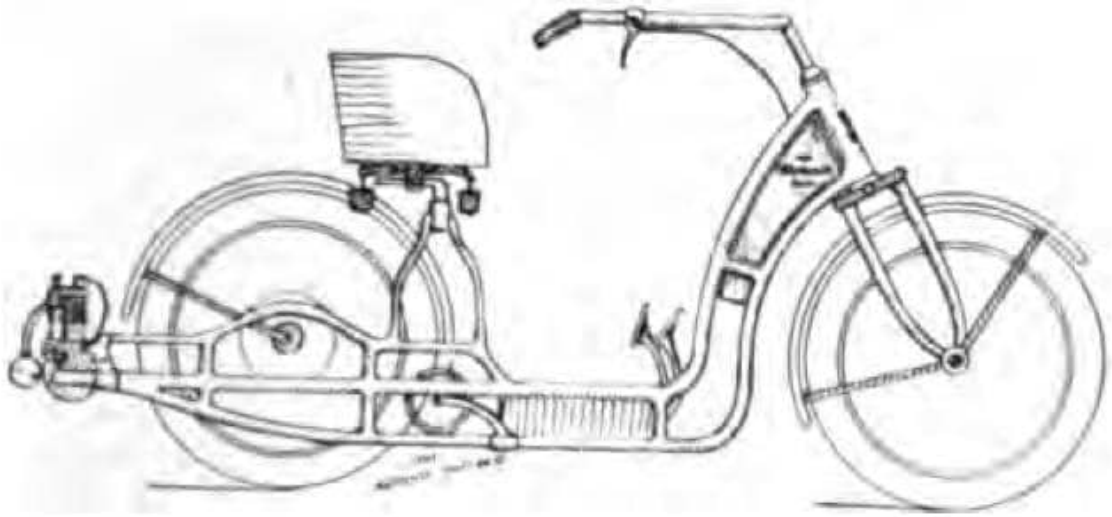
"IN THEBICYCLINGWORLDandMotor-cycle Reviewa reference is made to the spelling of the title of our governingbody, namely, "Auto-Cycle" Club. ThisNew Yorkjournal, which is apparently rather badly upset that the Englishpress and principal British motor cycling bodies will not accept any promiscuous record that is sent over from the USA, □ðndsgreatfaultwith the manner in which the name of the club is written, namely, in three separatewords. Surelythis is a case of the pot calling the kettle black. Had we been asked our opinion as to how the American Club would have spelt it, we should imagine it would havebeen printed 'Ortosycle-klub.' As a matter of fact, the names as spelt 'Auto-Cycle' Club and 'Automobile' Club call for criticism from the etymological expert, but an American editor can hardly be expected to be a suīiciently good authority on either grammar or etymology to detect exactly where the fault would lie in this direction."

THECHICAGOSHOWwas, apart from Bosch magnetos, all-American. Therewere 44 bikes on display including the mighty 40hp Curtiss V8 and an Auto-Bi open-framed model weighing in at 140lb complete with a bucket seat, sprung frame and forks and a 6hp four-pot engine mounted behind the rear wheel. According to the □ðrm'sblurb:"Theunique transmission occupies a circular space about three inches in extent and employs no gears, shafts, chains or belts. A speed of 7-40mph may be obtained by use of the transmission alone, the engine speed remaining practically constant."

Chicago Show: Merkel.

Chicago Show: Light.

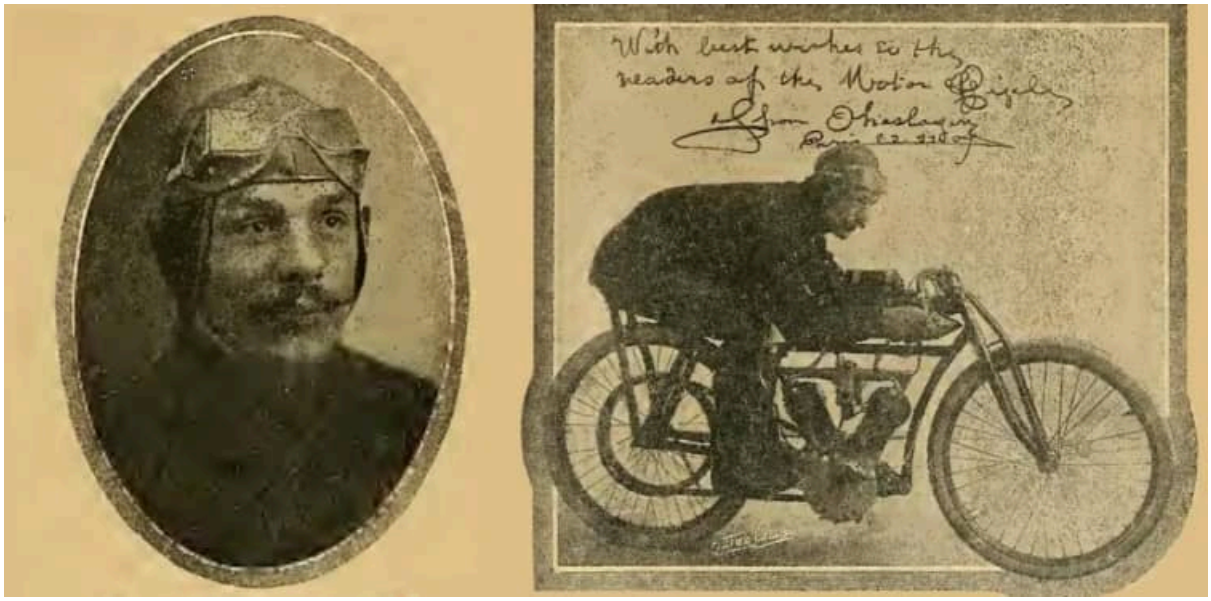
Chicago Show: Curtis.


Chicago Show: Four-pot AutoBi.

Chicago Show: AutoBi.

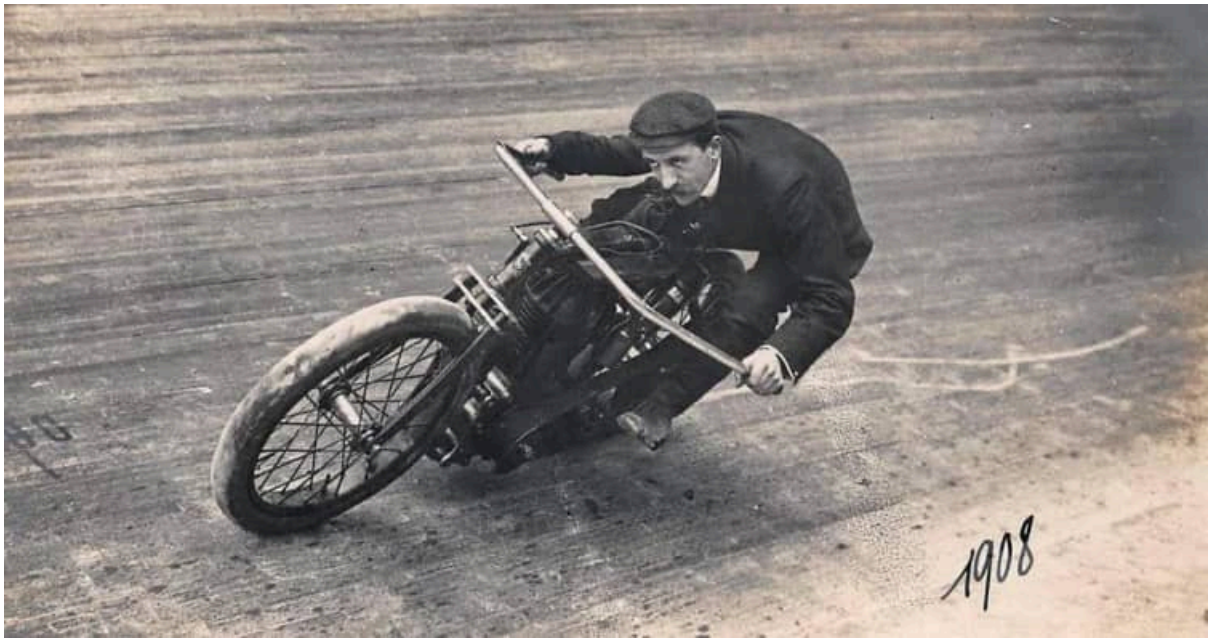
Chicago Show: Armac.

“THE CHAMPION MOTORCYCLIST OF THE WORLD. Jan Olieslagers, the Belgian rider, called in Paris ‘Le Demon Anversois’, (Antwerp Demon) can lay claim to the title of the motor cycle champion of the world. His performances during 1907 have been extraordinary, and I am quite unable to describe the impression which this rider creates on the French public when giving his fantastic exhibitions on the Buīalo Velodrome in the □ðickering light of the arc lamps. ‘Unbeatable’ is the word that justly expresses the opinion of the French public of this intrepid man, who has proved himself so superior to his opponents that, on his last appearance in 1907, the director had to make the race a handicap to infuse some interest into it, and Olieslagers conceded two laps in a three-mile race to each of the other riders (Buīalo track is □ðve and a half laps to the mile). Finding him at work on a pacing motor cycle at the winter track, the Velodrome d’Hiver, recently, we asked, ‘Are you satis□ðed with your successes in 1907?’ ‘Yes, I must admit that I am more than satis□ðed with my performances. The only thing I regret is that motor cycle racing did not commence earlier last season, for owing to the terrible accident at Buīalo the directors were afraid to recommence.’ ‘But were you not of opinion that motor racing after the accident would be eliminated from all future programmes?’ ‘Yes, I admit I was, and I think I can justly claim to have been the means of re-starting it. I met the director of the Buīalo at Brussels, and on being informed that he was dubious about running any more motor cycle events on his track, I volunteered to come to Paris and ride for practically nothing, to prove whether the French public was still in favour of them… To me it is life, and my happiest time is when, with the inside position, I am holding oī another rider on the outside and preventing him from passing.’ ‘Now will you tell me the quali□ðcations necessary to be the champion motor cyclist of the world?’ ‘Firstly, you must be a good mechanic and understand your machine better than yourself. You must be able to instinctively grasp diīicult situations. Courage is, of course, indispensable—you cannot have too much but at the same time one must know the danger line, and it is the knowledge of this last point which marks the real champion, and experience alone can teach it.’ As to machine? ‘It must have a fair length of wheelbase, but not too long; the frame must be rigid, the handle-bar well suited to the rider’s position, a strong pair of forks, and an engine more powerful than is required for the track when at full speed.’ ‘How many years have you been racing?’ ‘Well, I am now twenty-four years of age. For eleven years I have been a mechanic, and during seven

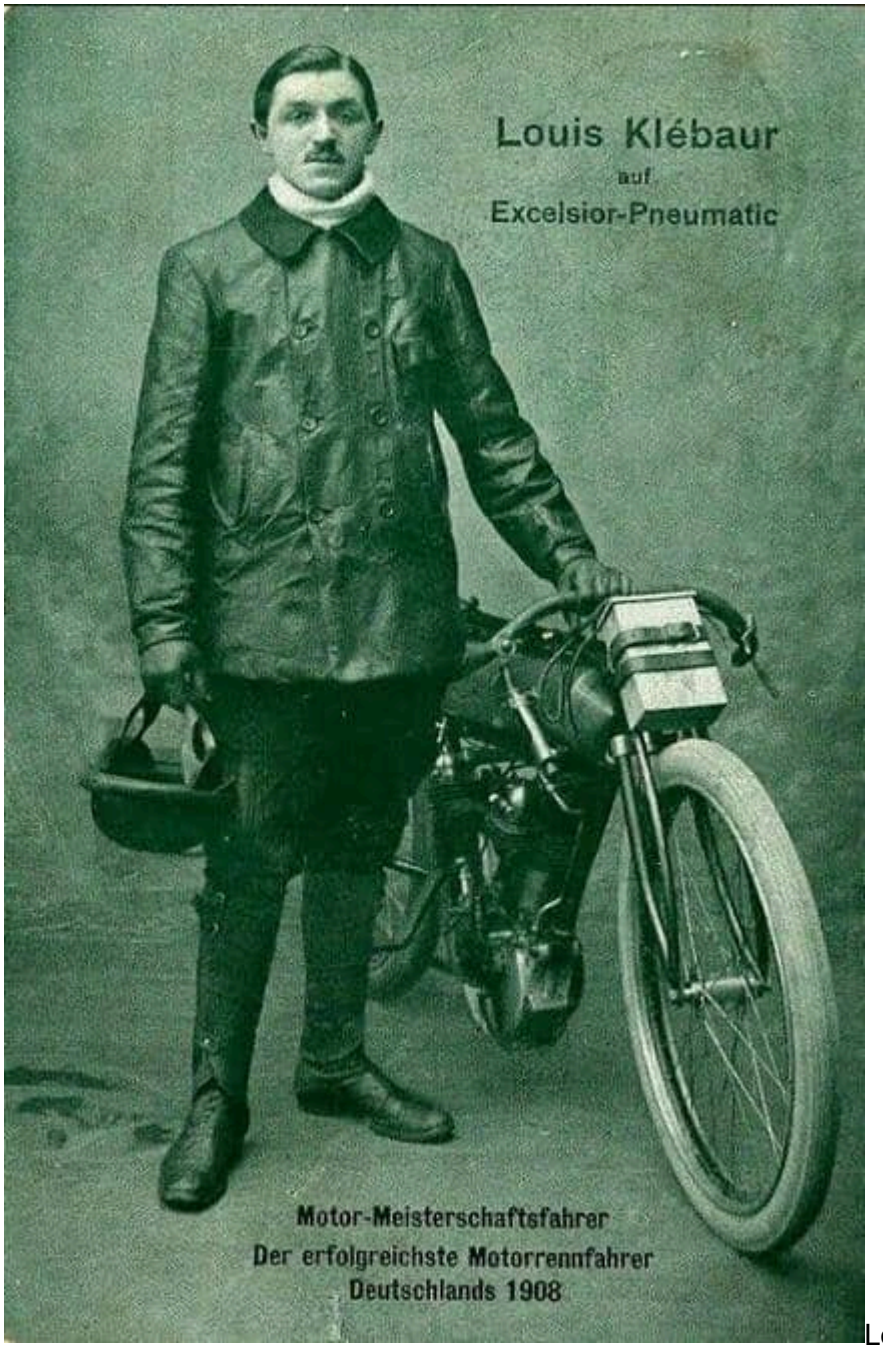


“Jan Oliesagers, the champion motor cyclist. His wishes to readers of The Motor Cycle will be observed written across the top of the photograph.”

years of this time I have been a racing motor cyclist.’ ‘Have you ever had any bad accidents?’ ‘Yes; once in 1904, at Roubaix, when I broke three ribs, two □ðngers, sprained my foot badly, as well as injured my shoulder. I have, of course, fallen on numerous occasions, but apart from the above case I have not been badly injured. I think I must have been born under a lucky star, although I admit a special knowledge of how to fall. For example, only a month or two ago, when racing against the French rider Cissac and the Swiss champion Bussac, through riding too close to the inside, I got my wheel oī the track, leaving the banking. Knowing it was impossible to avoid a fall, I managed to reach the next banking, when I threw myself oī the machine and rolled down unhurt, the speed at the time being sixty-□ðve miles an hour on a □ðve-lap track. Again, in 1905, at Antwerp, I had quali□ðed for the □ðnal of the championship of the world. When leading, I punctured. Every motor cyclist used to high speeds on highly-banked tracks is aware that, with a burst or large-sized puncture, it is impossible to hold the machine up. Had I immediately fallen from the machine, Pernette, who was following me, would have run over me, and the result of that would have been too serious to think about; switching oī would also have increased the danger of an immediate fall. By keeping going and retarding the spark, Pernette had passed me before we reached the other banking; then throwing myself oī, I saved the situation. It is through this instinct, combined with a good share of luck, that I have not experienced several severe accidents.’ ‘Now as to your more recent performances?’ ‘As time rolls on one must improve with it. In 1906 10.8 sec for a lap on Buīalo was considered marvellous, but last year I improved this time considerably, often doing 10 sec to the lap. I have on no occasion been beaten, as you know…” Olieslagers remarked that he had never had the opportunity of racing in this country and he hoped to be able to do so during 1908. With this I left him busily engaged □ðnishing some adjustments to his 18hp pacing machine. GAB” French champion Henri Cissac subsequently switched from two wheels to four. He came fourth of 41 in his debut car race and was runner up in his second race. But he crashed his Panhard et Levassor in the 1908 French Grand Prix and was killed.



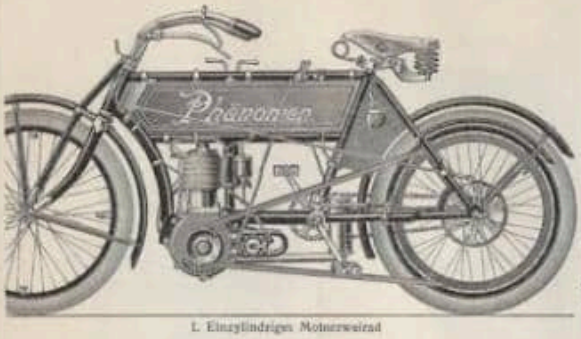
This picture of Cissac at the Circuit de Dieppe was published following his death in the 9th French Grand Prix.



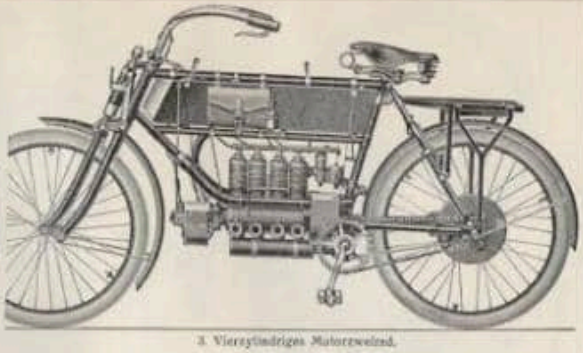
Louis Klauber, according to the caption on this postcard, was German motor cycle racing champion. His German Excelsior had no connection with the USor British marques of the same name. Note that in his own languageLouis was the “motor-meisterschaftsfahrer”. Wie cool ist das?

…and, a couple of pages from a German catalogue:

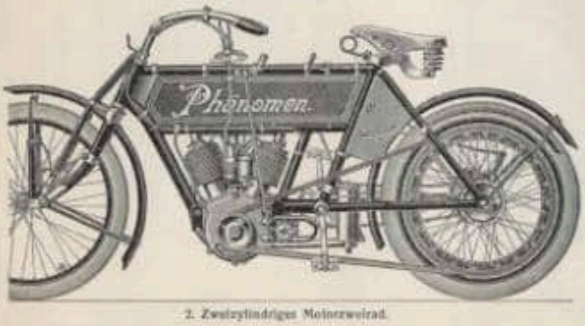
Motorfahrräder I.



1. Einzylindriges Motorzweirad

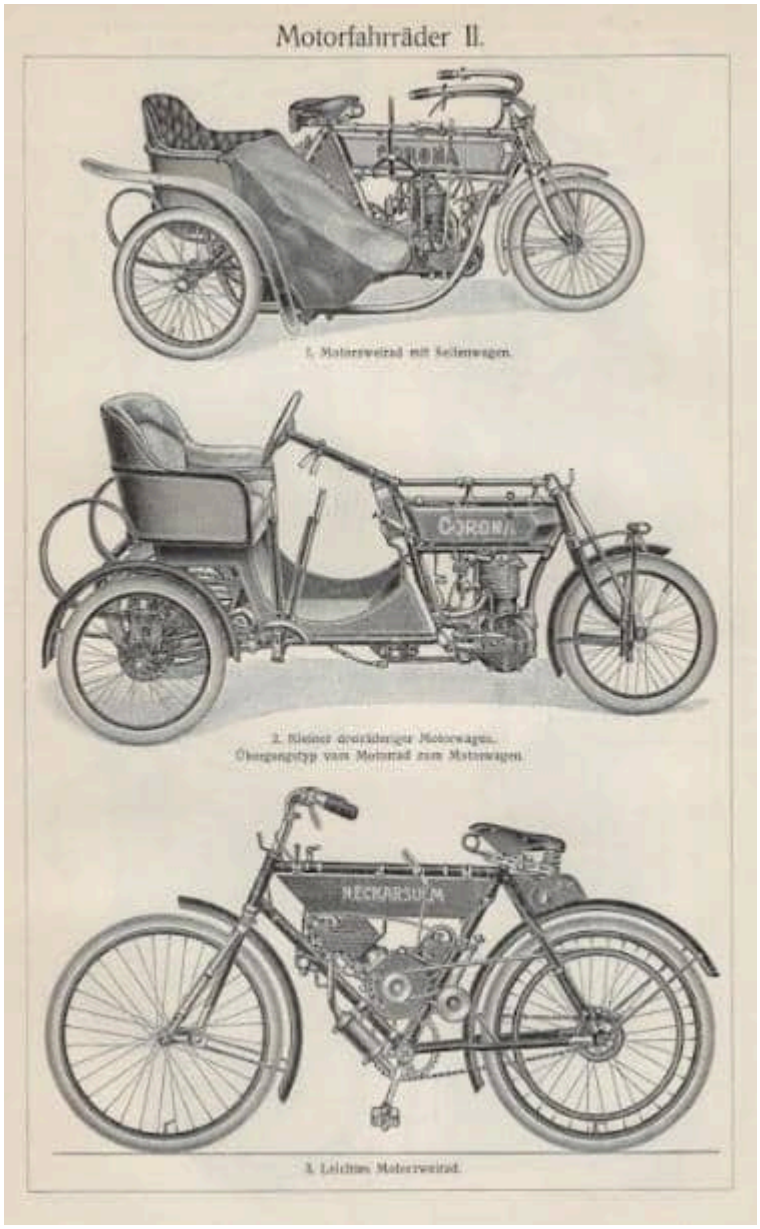


3. Vierzylindriges Motorzweirad.

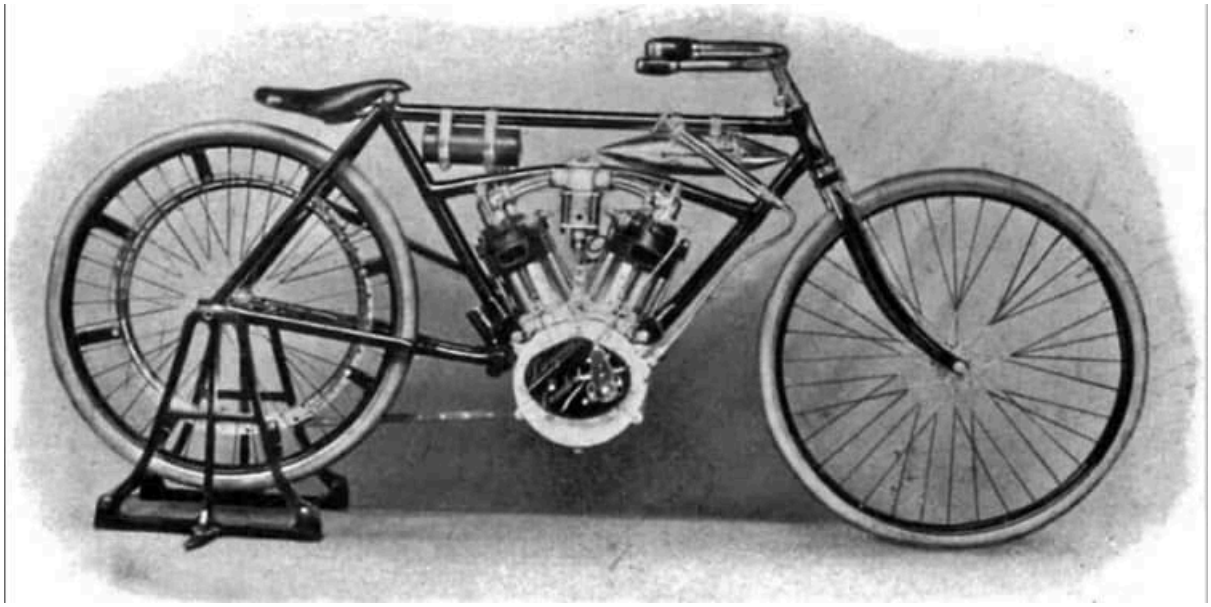


2. Zweizylindriges Motorzweirad.

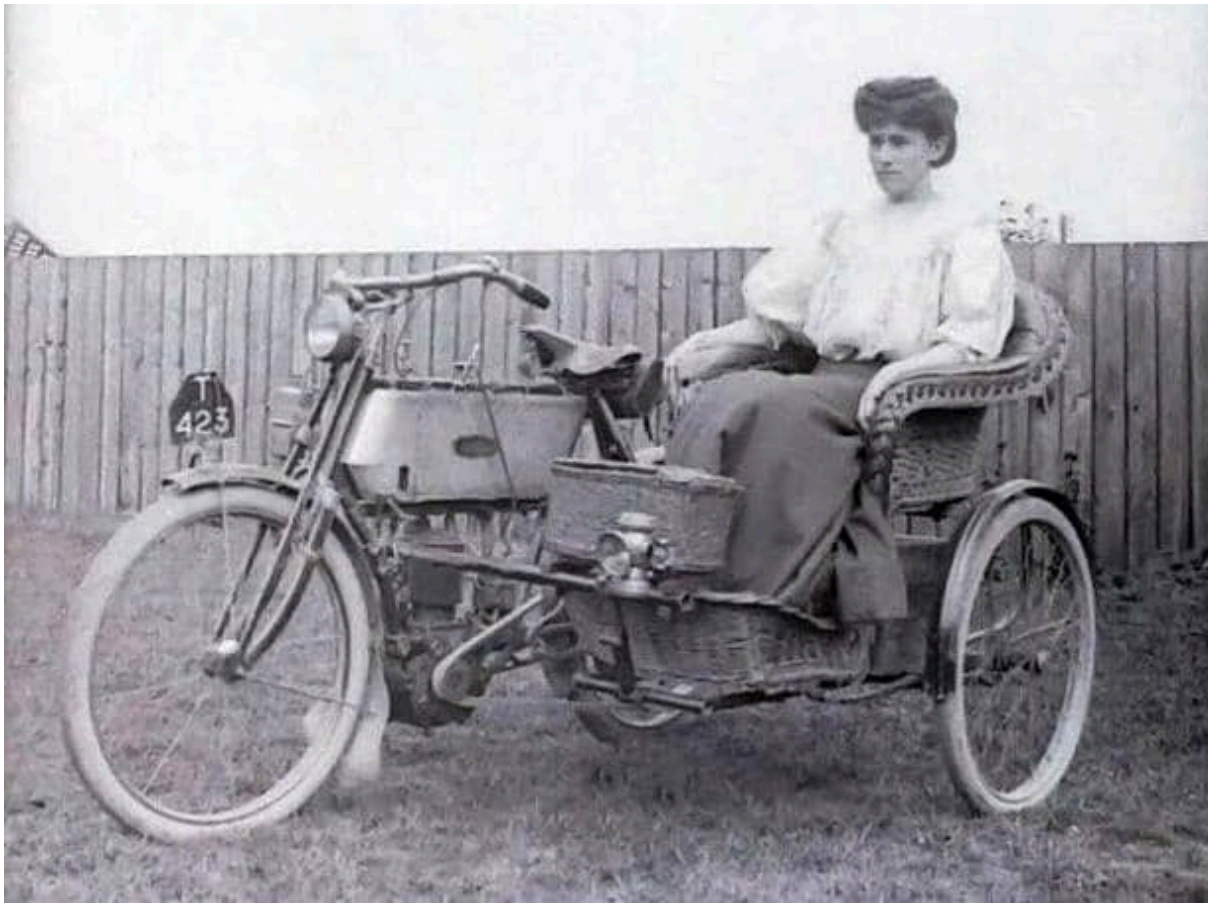
4. Motorzweirad mit Vorspannwagen und Transportkasten, der durch Personensitz ersetzt werden kann.



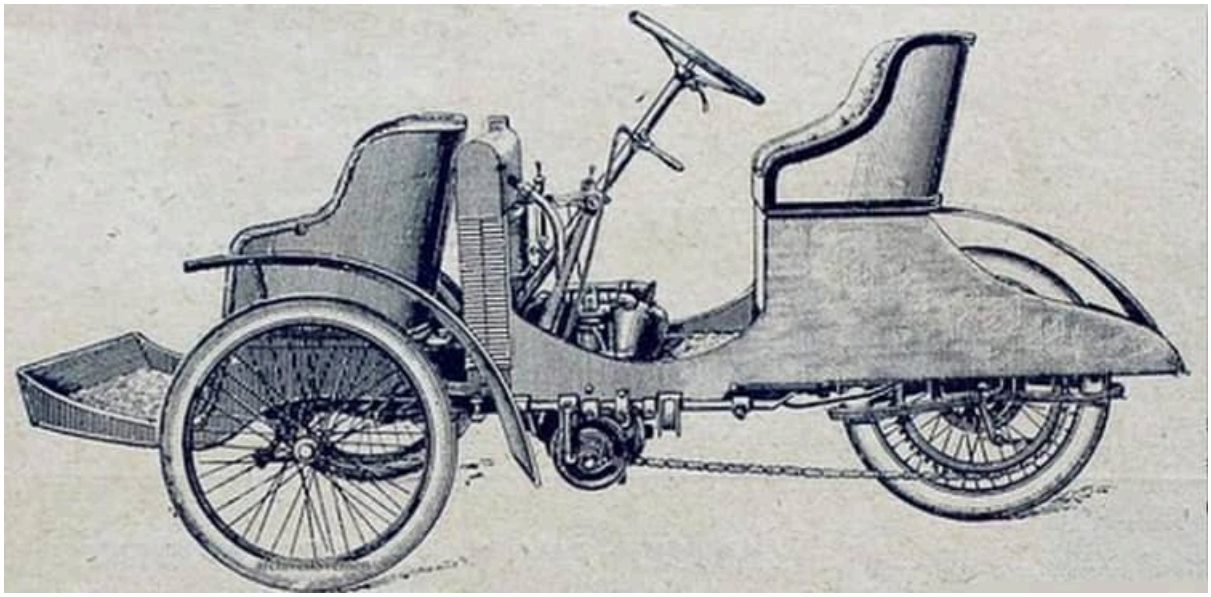
“A NOVICEUSUALLYwonderswhether he will ever be able to get on to his motor bicycle. It is best to practise mounting by pedal or footrest down a falling grade, with the belt removed. The art is soon acquired, and becomes perfectly automatic. I invariably mount clean oī the ground, which I consider much safer than feeling for a pedal or footrest. If the rider is nervous he may momentarily raise the valve or switch oī while swinging himself into the saddle, but unless he learns to jump on cleanly with the engine running, he will only be able to start on the □ðator downhill. Starting by sitting in the saddle and pedalling is the slowest and most tiring method of all, and no rider should rest content until he has mastered either the clean jump or the pedal hop. With a variable gear there is no need for any exertion at all. Simply inject paraīin to free the rings, sit athwart the machine, engage low gear, set levers, raise valve, give two smart pushes against the ground, one with each foot, drop valve, and engine should start.”



Lurquin & Courdet , based in Paris, added engines to their bicycles from about 1901; this is clearly an out-and-out track racer, stripped to the bone and not for the faint-hearted.



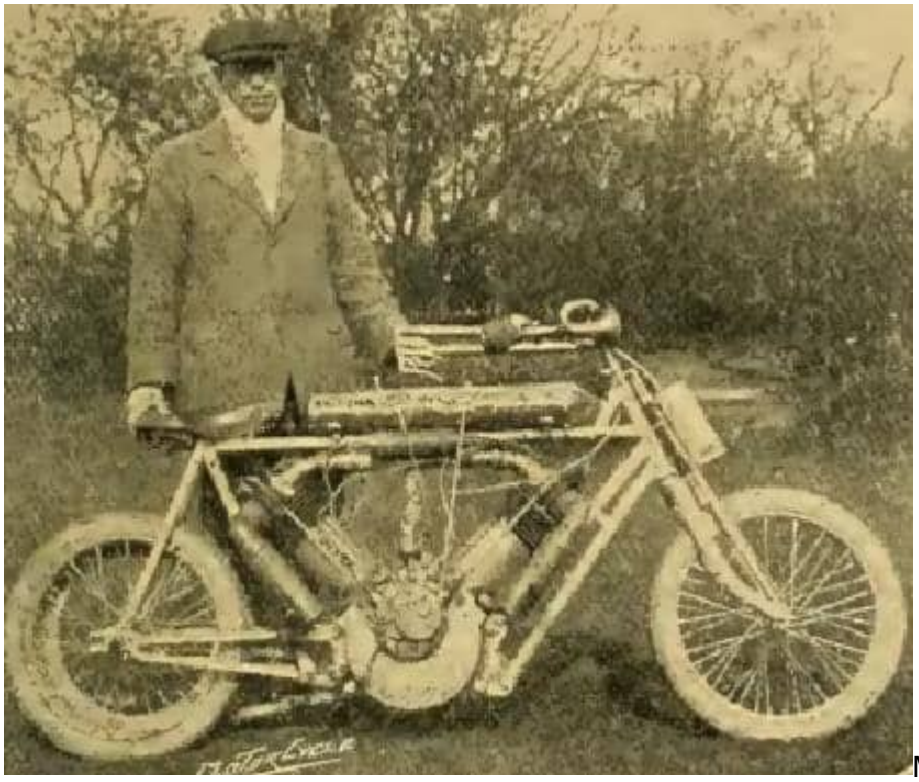
By way of contrast, this lady, in her Sunday best, is clearly ready for an outing, complete with picnic hamper. The bike is a 3hp Kerry De Luxe.



This noble beast is the 'Nils Supra' tricar.

A SURVEY ABOUT the ideal bike revealed that most riders wanted a single-cylinder engine of about 450cc with a 'change-speed gear' and free-engine clutch, pedals and an all-up weight over 150lb.

CB GRIMSHAW OF Sunderland designed and built "one of the highest powered motor bicycles used on English roads" using JAP's 90° 1,320cc twin rated at 20hp which was designed for racing and record breaking (it was put to good use by Matchless and Vindec, among others). Mr Grimshaw clearly scorned such pastimes; note the touring handlebars and substantial horn.

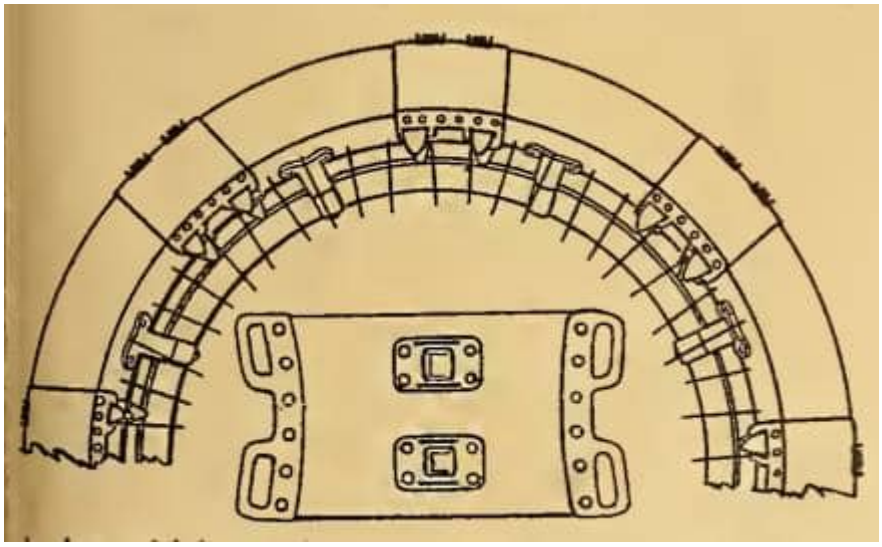


Mr Grimshaw looks sensible, unlike his 20hp twin.

“IT ISABSURDtosuppose that a motor cycle is the frequent cause of accidents. Reference to statistics will prove that accidents caused by motor cycles are of veryrare occurrence indeed, and in□ðnitesimalwhencomparedwith those caused by other vehicles. A motor cycle is more amenable to control than anyother road vehicle. Raisingone lever and gently applying the brakeswill bring a machine travelling at legal speed to a standstill in an incredibly short distance, so that the risk of an accident in that direction is considerably minimised. Of course, a stupid hen (and hens are stupid), a dog, or a nervous horse may cause hasty dismount, but in ninety-nine cases out of one hundred it will be found that the accident was not caused by the motor cycle, but the other party ir the case, and accidents of this nature are just as liable to occur to the pedal cyclist as to the motor cyclist.”

HUMBER‘ORDINARY’£1shares, which had been down to 1s 6d in 1905, were changing hands at £2.50.

“A MOTORBICYCLEdependsfor safety rather on the pluck and personality of the driver than on the nature of the machine and roads. Anyonecan hold up the modern belt driver if he makes up his mind to it. Diīicult machines to handle over greaseare those with chain drive, high frames, and high gears. A non-skid band □ðttedwitheither rubber or steel studs on the rear tyre is less liable to skid…It is a great mistake to havetoo good a silencer. A motor bicycle catches the eye far less than a car, and a silent motor bicycle is likely to be concerned in accidents. If a really good silencer is □ðtted,thehornwill have to be used ad nauseam…Theso-called ‘racing’ position renders one less master of the machine on grease,looks ungraceful, and removes necessary weight from the front wheel. A trailer is an unsatisfactory method of conveyinga passenger,and under no circumstances should any trailer not specially built for motor work by a reliable □ðrmbe attached to a motor bicycle. I havetwice had breakageswith special motor trailers, and in addition they are easily upset, and the driver may pardonably forget how much room he needs when seeking a □ðssureinthetraīic. Theyare very shaky, and the passenger gets the full bene□ðt of all dust, noise, and smell. It is prudent for the driver to shout once in everymile, ‘Areyou there?’.



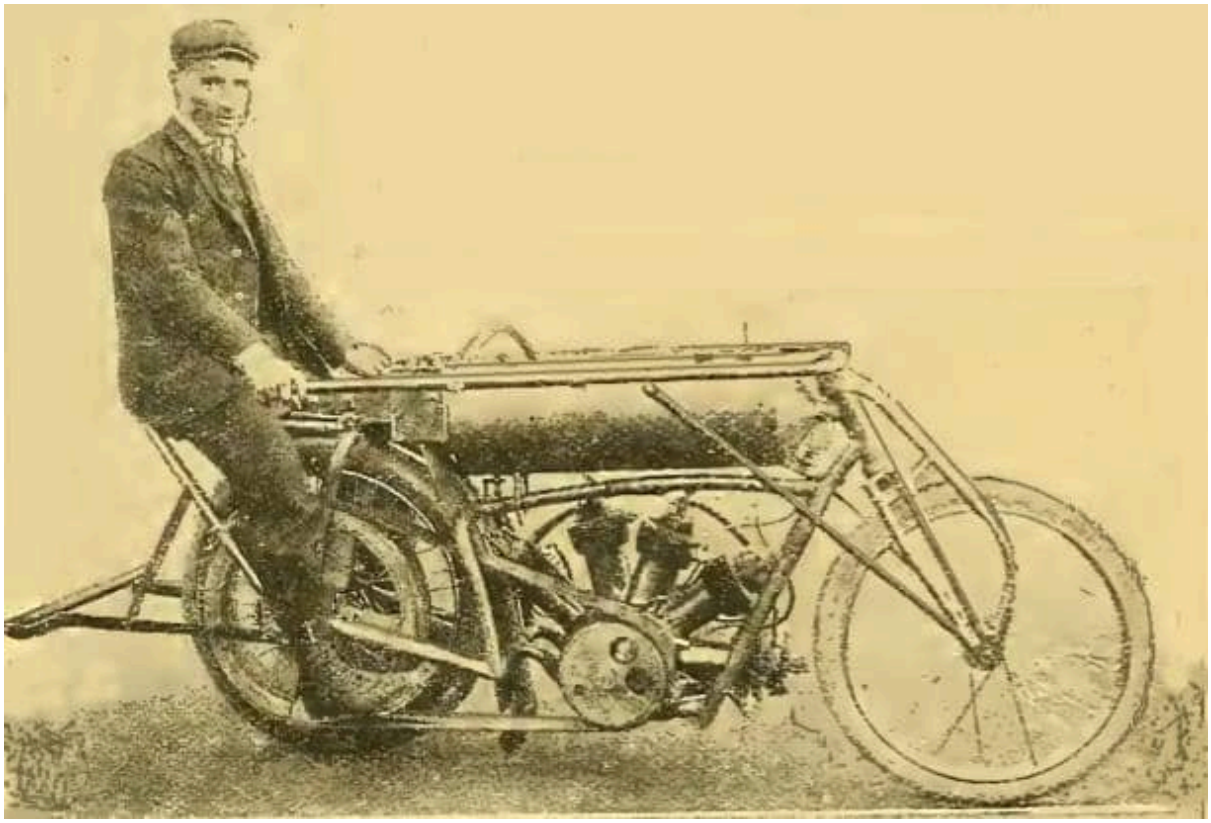
NSU’sanswer to the sideslip scourge: studded leather pads.

NSU CAMEUPWITHan anti-skid device comprising eight pairs of hooks □ðxedtotherear rim to which leather bands could be attached incorporating square steel plates with projecting studs. It was claimed that “safety on greasyroads is assured, and danger of slipping on stone setts

minimized owing to the amount of rubber exposed being greater than the amount of studded leather".

"THE BEST OUTFIT for all motorists is a roll-up looped strip, with pockets for oddments in the end. The touring kit should include:
One 8in wrench.
One small adjustable spanner.
Special open-ended wrenches for all inaccessible nuts.
Trembler coil or magneto spanner, if either is used.
Small pair of □ðat-nosed pliers.
Short, strong screwdriver.
Valve spring remover.
Half-round □ðle with cover.
Contact □ðle and case.
Tyre repair kit.
In□ðator.
Oil can.
Paraīin or petrol can.
Copper wire, thick and thin.
Sparking plug, valve cap, and compression tap washers.
Two spare valves complete.
Three spare plugs complete.
Belt punch or drill.
Two spare belt fasteners.
Fine wire for clearing carburetter jet.
Sundry nuts and bolts.
One or two spare nipples for Bowden wires if used."

ESNAULT-PELTERIE of Paris produced a 20hp V5 motor cycle version of its 30hp V7 aircraft engine to power a bicycle pacer. Instead of the V7's one-carb-per-pot layout the bike engine relied on a single Claudel carburettor. "My mount is □ðtted with very comfortable footboards, big saddle, long wheelbase, and very long handle-bars, and I have never felt the slightest fatigue after being in the saddle all day; but I venture to say I should not feel as fresh after riding a lightweight for the same time. I found there was no comparison with the light machine when riding over the same roads on my own heavy twin."



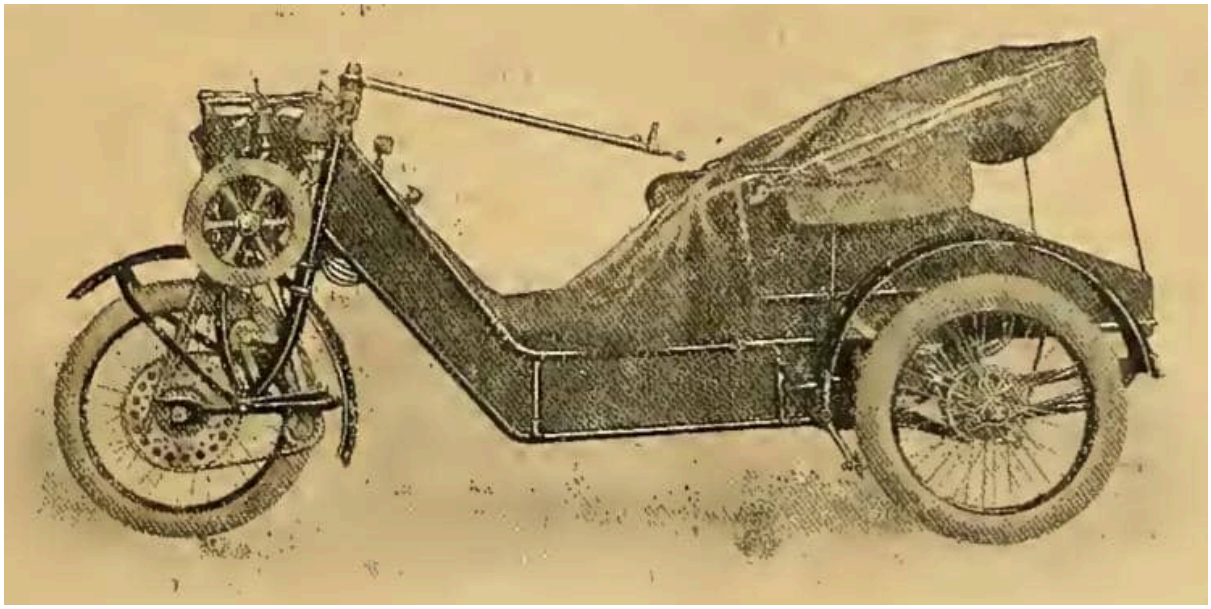
Cycle pacers were the most radical motor cycles of their time, none more so than the V5 Esnault-Pelterie (you'll ĭnd lots more pacers in the Illustrative Melange).

"LONG LOW FOOTRESTS are dangerous when taking corners at fast speed, as was proved at the ACU Hill-climb at Sutton Bank. One or two competitors had long footrests □ðttedto their machines, and during the afternoon the left footrest of one machine caught in the ground while the machine was travelling at 20mph round the bend, and acting as a pivot spun the machine completely round."

THERE WERE about 25 motor cycles in Madras.

IN THE SAME YEAR that motor cycles □ðrstraced round the Brooklands circuit the Americans opened The Clifton Saucer: a steeply banked wood speed bowl with room for only two bikes at a time. Its circumference was under 300 yards, laps typically took nine seconds. One pundit opined: "It is a death trap. pure and simple."

ROYAL MOTORCYCLISTS included Prince Albert of Monaco, Price Gustavus Adolphus of Sweden and Prince Eitel Fritz, second son of the German Kaiser.

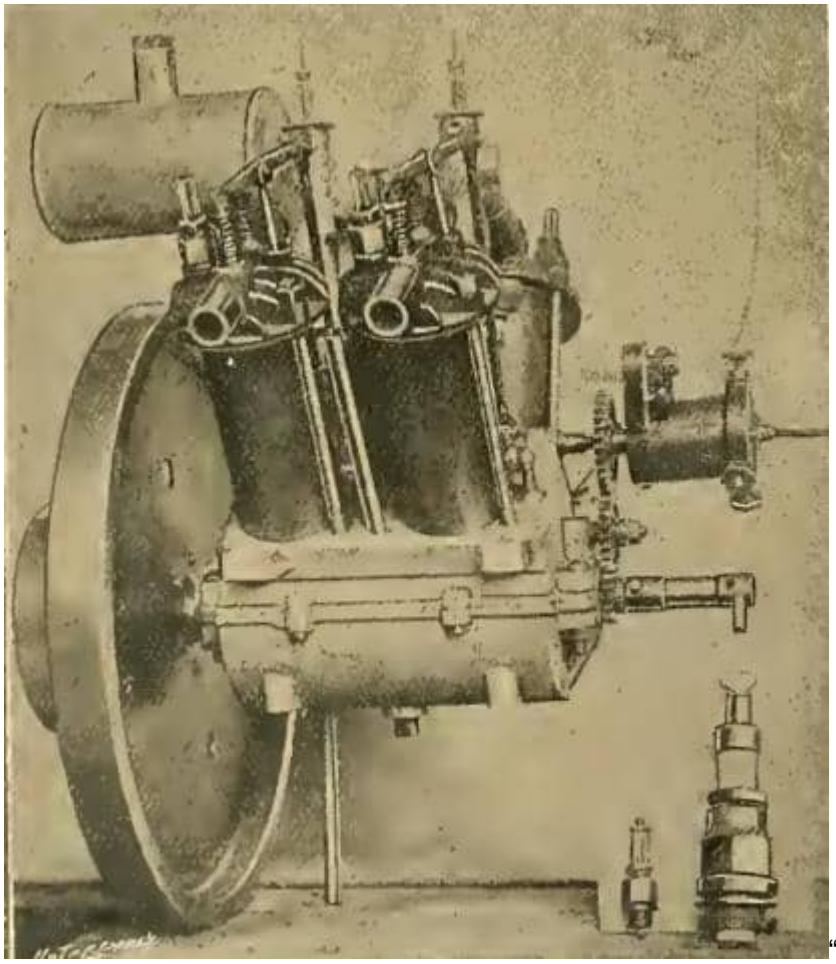


The Phenomobile looks like a comfortable way to travel.

THE WEST LONDON-based New Era Motor Co imported a sturdy German Phenomobile trike, powered by a 440cc/8hp V-twin engine mounted over the (sprung) front fork. A two-speed Nala gearset was built into the front hub. It also featured "an extra air shutter, by means of which the air supply can be reduced for starting in cold weather". Or as we'd say, a choke.

"THERE IS A tendency to gain advertisement out of town-to-town records on motor cycles, and we hope those responsible for the organisation of such performances will refrain from further exploits of this nature. Motor cycles are gradually but surely gaining popularity…it would be very regrettable if scorching between towns should cause restrictive legislation, as it undoubtedly will do if indulged in to any extent."

NO NEED TO KEEP grinding paste in stock; the tip was to mix □ðour, oil and emery powder.


"The size of the miniature V4 is indicated by the tiny sparkplug, with a standard plug for comparison."

A NORTH LONDON garage mechanic designed and built a V4 engine which, he claimed was the smallest working air-cooled petrol engine in the world with cylinders made from 1¼in steel tube. He made his own minature spark plugs, contact breaker, distributor and coil. It weighed 8lb and developed 1¼hp at 1,300rpm.

HERE'S AN EXCERPT from one of dozens of letters from doctors published in The Motor Cycle following a request for testimonials: "Have used a motor bicycle for four years in my practice and average 10,000 miles a year over hilly country. As regards my own health, I have never been better, and despite the fact that through all conditions of weather there are no spring forks or saddle-pillar □öttedtomyfour-year-old single-speed machine, the vibration (the bogey of motor cycling) over our bad roads has neither unsteadied my hand nor shaken my nerves. I could write from now to next year giving instances where the motor cycle, and the motor cycle alone, has made the diīerence to the ultimate recovery of serious cases. For four years I have used Palmer tyres, and only once had a side-slip (on ice coming down 1-in-9 on frozen snow). Charles Patterson, MB, MRCS."

NINE CLUBS SENT teams to compete for The Motor Cycle Challenge Cup: the Coventry, Yarmouth, Oxford, Manchester, Birmingham, Sheīield, Southern and NW London MCCs…and 'The' MCC. The reliability trial was based on Daventry where most of the 54 entrants stayed the previous night. "But," the Blue 'Un reported. "the Sheīield 'blades' are a hardy lot, and left home shortly lifter midnight for the scene of operations, all duly arriving at 8am." The idea was to cover the 100-mile course non-stop, the Coventry team won by a comfortable margin and, this being

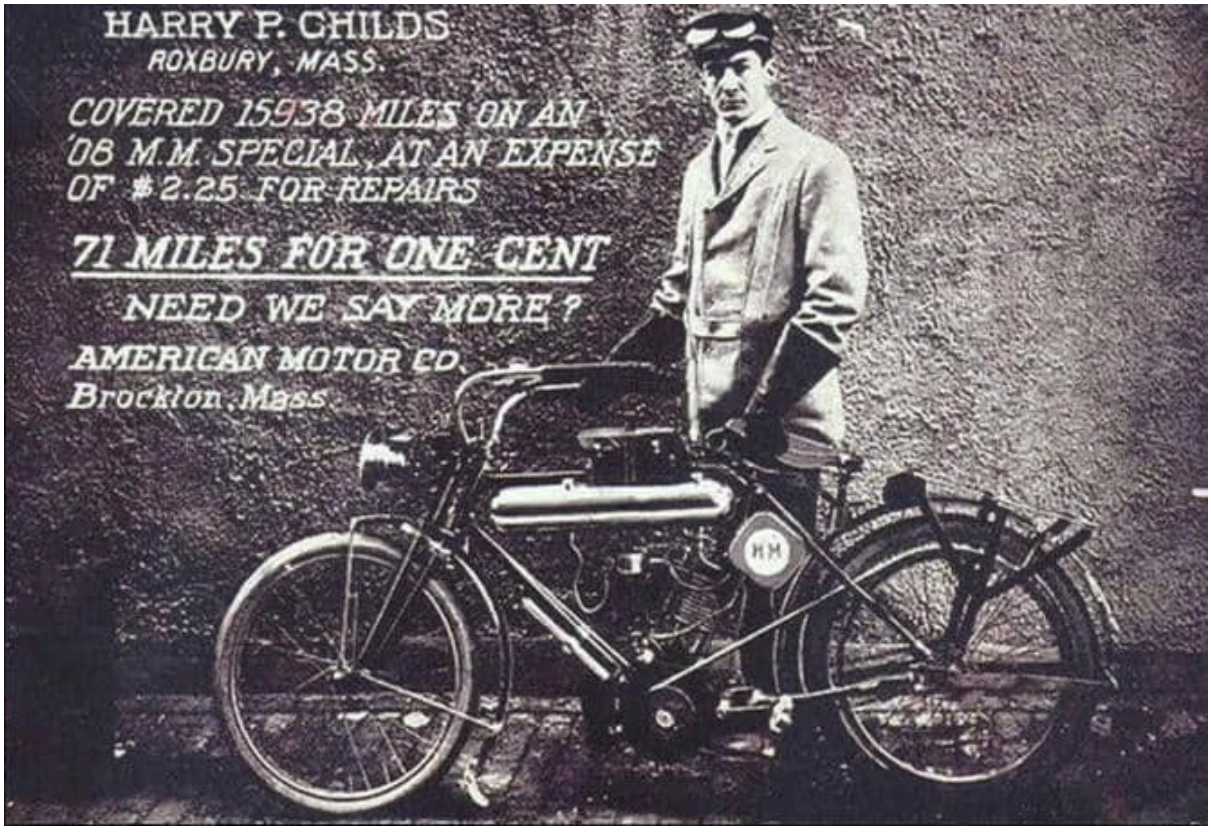
their 3rd win, took permanent possession of The Motor Cycle Club Fifty Guinea Cup. Factory teams were entered for the trial including Vindec, Douglas, Rex, Triumph, NSU, P&M, Motosacoche, Moto Reve, Roc, Zenith and Phanomen. The Motor Cycle Club presented the MCC with a replacement cup.

JW Ardern (Sheīield and Hallamshire MCC) starting on his 3½hp P&M for the second 50-mile stint during The Motor Cycle Challenge Club.

AN ENTHUSIAST LEAVING Britain on a Continental tour wrote: “Modest cottage and noble hall, mead and wold, hill and valley, have ever enduring charms which give interest to the constantly varying pictures of nature that are passed in review by the motor cyclist. Even vile weather and grasping hosts cannot take away the delights of the English countryside—the countryside as seen by him who looks not for the relation between it and those who dwell therein. Even at a season when the prevailing tones are greys and browns and purples no country in the world is quite so attractive in its combined sylvan and pastoral scenes as England. What pleasing mutations of form and combinations of colour. But even these must not detain the tourist too long. Folkestone was set in banks of mist, the Channel was veiled in □ðeecyvapours, and Boulogne was bathed in the tears of the weeping skies, as we prepared to embark for other shores.”

AG Chapple (6hp NSU) won the 800cc class of the New York hillclimb.

THENEWYORKMC'sDecoration Day hillclimb was run up a 1,290ft road in New York City. There were 51 starters; half of them entered on the day which delayed the start by an hour. Indians took top three spots in the 350cc class; □ðrstbikeshomein the 500cc class were Indian, Marsh-Metz and Curtis. The800cc multi-cylinder class was won by an NSU,ahead of two Indians (with a British Vindec in 4th place). The1,000cc multi-cylinder class was headed by a brace of Indians, with third spot goingto Peugeot.And top three in the no-limit 'free for all' were Indian, Curtiss, Peugeot.Marsh-Metz also staged an economy run: the original caption says it all.



"YOU DO PUBLISHsomerot in your paper, the latest nonsense being to advise people that the Stanley belt fastener can be used to lengthen a belt. Thediīerence in lengths of the three sizes is only ¼in. How long do you imagine a new belt will be stretching ¼in? If you give advice, give sensible advice.
FGS, Plymouth"
"The fastener in question allows the belt to be shortened ¾in as it must be obvious to anyone except 'FGS' that more than one hook can be used. When our correspondent has mastered this, we should recommend him to learn by heart, 'The man who asks questions should ask sensible questions, and ask them civilly.'— Ed."
And in the next issue: "I can gather from FGS'signorant abuse of your most interesting and instructive paper that he is one of those persons who has sat on the saddle of a motor bicycle, sounded the horn, and aimlessly moved the levers, the machine being on the stand, of course. After this he thinks he has…suīicient knowledge to advertise his lack of reasoning power in print.
PF"

"WHEREARETHEScouts? We cannot congratulate the AAon its scouting arrangements on the Maidstone and SevenoaksRoad. At present the police are very busy on the SevenoaksRoad,

and no sign of a scout is to be seen, whereas on the 18-mile stretch from Ashford to Folkestone no less than four of the AA men were seen on a recent weekend."

A COMPETITOR IN the Leeds MCC London trial covered 527 miles in 26hr 27min riding time.

The Hull and East Riding Auto Club was one of many 'mixed interest' clubs for bike and car enthusiasts springing up all over the UK.

A BIRMINGHAM DAILY paper reported that a lightweight race at Villa Park was won on a Mattress. The Blue 'Un quipped: "Most of our readers will doubtless guess that 'Matchless' was the word intended. Winning a motor cycle race is a little more strenuous than lying on a mattress, as many riders can testify." Ho ho ho.

A GROWING NUMBER of riders were having problems buying tyres because lack of standardisation meant tyres that were nominally the right side simply didn't □ðt.

A DUBLIN COURT □ðned a hapless motor cyclist £10 for speeding in Phoenix Park. A car driver caught speeding in the park was □ðned 3s 5d.

"DETROIT HAS WOMAN Motorcyclist: The unique distinction of being the only woman motorcyclist between New York and San Francisco is claimed by Mrs HG Smith of Detroit, wife of the president of the Detroit MC."

Mrs HG Smith, a member of the Detroit MC with her MM Special .

THEACU24-HOURtrial from London to Plymouth and back, based on the Angel Hotel, Thames Ditton, attracted 29 starters who rode overnight via Guildford Winchester Salisbury to Yeovil for breakfast. From Yeovil to Honiton was a special section of 30¼hilly miles which had to be covered in between 1hr 29min and 1hr 35min on both the outward and homeward journeys.

Readyfor the oī at the Angel Hotel Thames Ditton.

It wasn't an easy run. CH Bar□ðeld(3½hpTriumph)had to deal with six punctures; Martin Geiger (6hp NSU out□ðt)raninto a bridge and broke a wheel near Yeovil; WJNewman (4hp Roc) had gear trouble at Yeoviland found three teeth chipped oī a pinion. He phoned a garage,was allowed to

use its workshop, repaired the pinion and caught up with some of the other riders at Exeter. WT Smith (2hp Moto Reve), having slogged through the trial on a lightweight, was among the non-finishers and wrote to The Motor Cycle about it: “Mr Smith sends us a sample of puncture material which he picked up en route. This

End of the special section: Honiton control at 5am.

consists of a piece of iron 2in. long, 1¼in. wide, and about ½in thick, with several sharp edges. Mr Smith informs us that this cut the tyre crossways and nearly severed it, sprained his ankle, and caused his retirement.” Twenty-one riders reached Plymouth. On the way home CH Crole Rees (6hp Advance) replaced a broken valve but had to retire “through the head of his cycle breaking”. Freddy Barnes (3½hp Zenette) was delayed by a blocked fuel pipe; Barnes and H O’Hagan (5hp Vindec Special) were misdirected when near home and sent about 10 miles out of their way. Seven more fortunate riders who arrived back at the Angel before the deadline, and had completed the special section on time, were awarded gold medals. For once, there were no speed traps; instead the cops cleared a route through the major towns, where hundreds of locals turned out to cheer the riders on. However, after the event there were complaints that the event clashed with the ACU’s Land’s End trial. Both these events put machines and riders to the test but, thanks to some lousy weather, the ACU six-day End-to-End trial (which was the genesis of the ISDT) turned out to be toughest long-distance trial to date. [A report, results, backround stories and pictures will appear in the 1908 Features page.] According to The Motor Cycle’s correspondent: “Never before in any long distance trial have such wonderful pluck, endurance and skill been seen. If the motor cycling public ought to be grateful to the ACU for helping to develop improvements in motor bicycles, how much more ought the British public as a whole to be grateful to that body for bringing out that splendid doggedness which is inherent to those of our nation?”

As a convincing proof that motor cycling is not con□ðnedtotheyoungersection of the community, we have pleasure in reproducing a photograph of a group of seven riders of the well-known Bat pedalless motor bicycles—father, two sons, a son-in-law, and three nephews. Seen from the right the machines are 9hp, 7hp, 6hp, and 5hp Bat-JAPs,andthree 4hp Bats. Thethree last machines have been in constant use for □ðveyears,andthesenior member of the party, Mr Sharpe, who is an enthusiastic rider of the 7hp, says they run as well as when new. Mr Sharpeis the second □ðgurefromtheright, and is 60 years of age. Thephotograph was taken in his own grounds at Halton Hall. He is a particularly enthusiastic motor cyclist, and though a lover of ease and comfortable riding, thoroughly enjoys an occasional 'dust up' when circumstances permit. He considers the 7hp 1908 Bat with magneto ignition superior to anything the Bat Co have previously made, and the □ðnesttouringmachineit is possible to obtain. Such enthusiasm on the part of riders speaks well for the Bat Co's future.

AN AMERICANpublication reported on "A British FreakMotorcycle" in uncompromising terms "An English motorcycle designer has produced what is appropriately termed a 'stand-up' machine, although its real name is the Max. Thewheels are very small, and the machinery is quite close to the ground. Thereis no seat, and the rider stands upon footboards which are on either side and slightly forward of the point at which the rear wheel comes in contact with the ground. As these boards have a clearance of not more than two inches, a poor or uneven highway might furnish the rider with the surprise of his life. A motorcycle upon which the rider can stand on one foot would seem to be the next problem for designers to attack."

Standing room only on what the American's reckoned was a mad Max.

THE GERMAN CYCLING Federation hosted a 144.5-mile fuel consumption trial round Berlin. There were 30 competitors; marques represented included FN, Phanomobil, Magnet, Goricke, Durkopp, Laurin and Klement, NSU, Wanderer, Progress, Brennabor, Phanomen, and Motosacoche. A 3hp Gorike won the over 2hp class; it took 8hr 51min to complete the course and used 5.9lit. A Motosacoche won the under-2hp class with a time of 9hr 21min and consumption of 3.79lit–111.1 and 119.9mpg respectively.

HIGHLIGHT OF THE ACU's annual race meeting was a one-hour scratch race, The Motor Cycle Challenge Cup, limited to 76x76mm engines, roughly equivalent to 350s. HV Colver (Matchless) won with a record breaking 52 miles 1,650 yards.

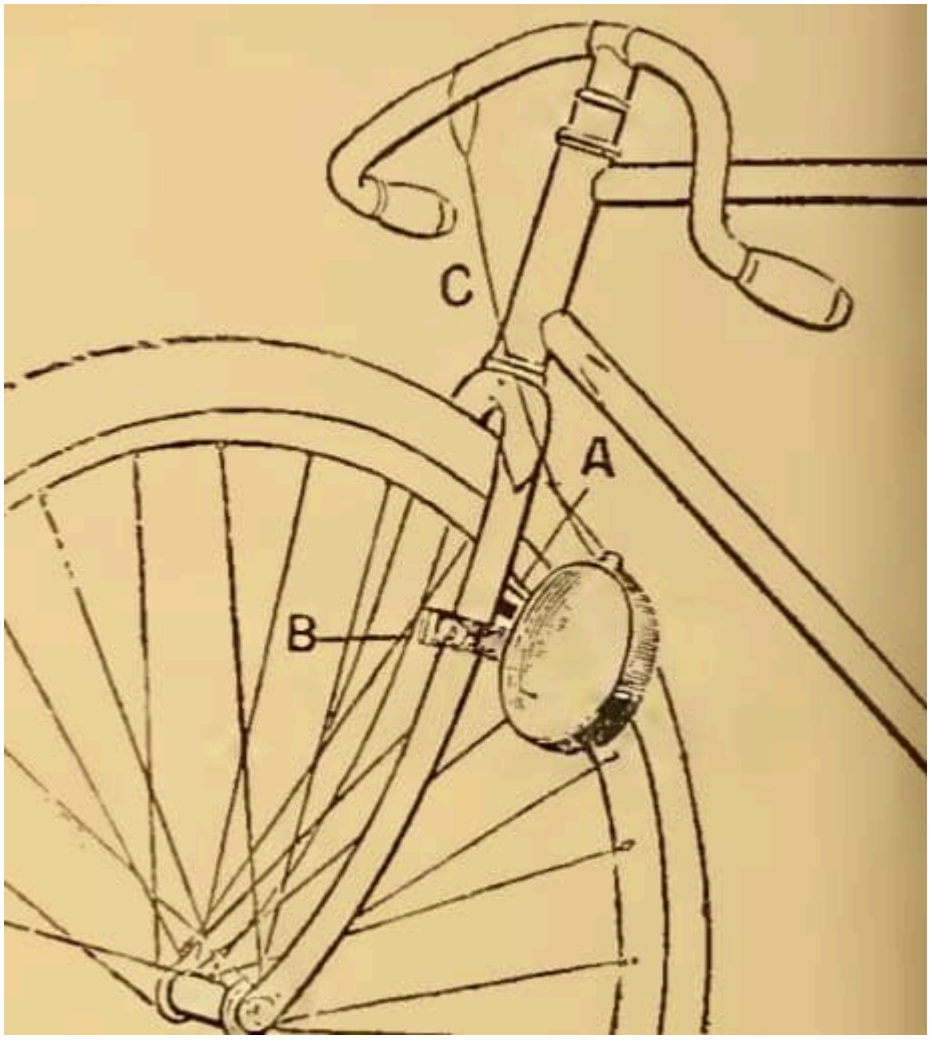
FOLLOWING THE SECOND annual gathering of northern clubs, the Midlanders got together at Stratford-upon-Avon. Some 60 enthusiasts rode in from the Birmingham, Burton-on-Trent, Coventry, Oxford Bocardo, Sutton Cold□ðeld and Worcester MCCs. The six club secretaries got together and decided that, like the Northerners, the Midlanders would meet anually.

Not to be outdone by the Northerners, Midlands clubs staged their □ðrstregionalrally.

“MOTORCYCLISTSAREwelladvised to exercise care when riding alone and after dark in the quiet Kentish lanes. With the exodus to the hop gardens the roads are frequented by dangerous characters. Carry good lamps, as on the surface of dark tarred roads footpads are only recognisable a few yards away.”

“MOTORCYCLISTSAREwarnedto beware of juvenile excursionists from the slums who are transported to country lanes and roads for fresh air, particularly down south. Conversingthis week with Mr Sleath, a well-known Leamington trader and a motor cyclist to boot, he told us that when repairing a tyre of his Motosacoche near Brighton the other day he had a 1s 6d touring map, a screwdriver, and his goggiesstolen by these juvenile admirers of his tyre repairing eīorts.”

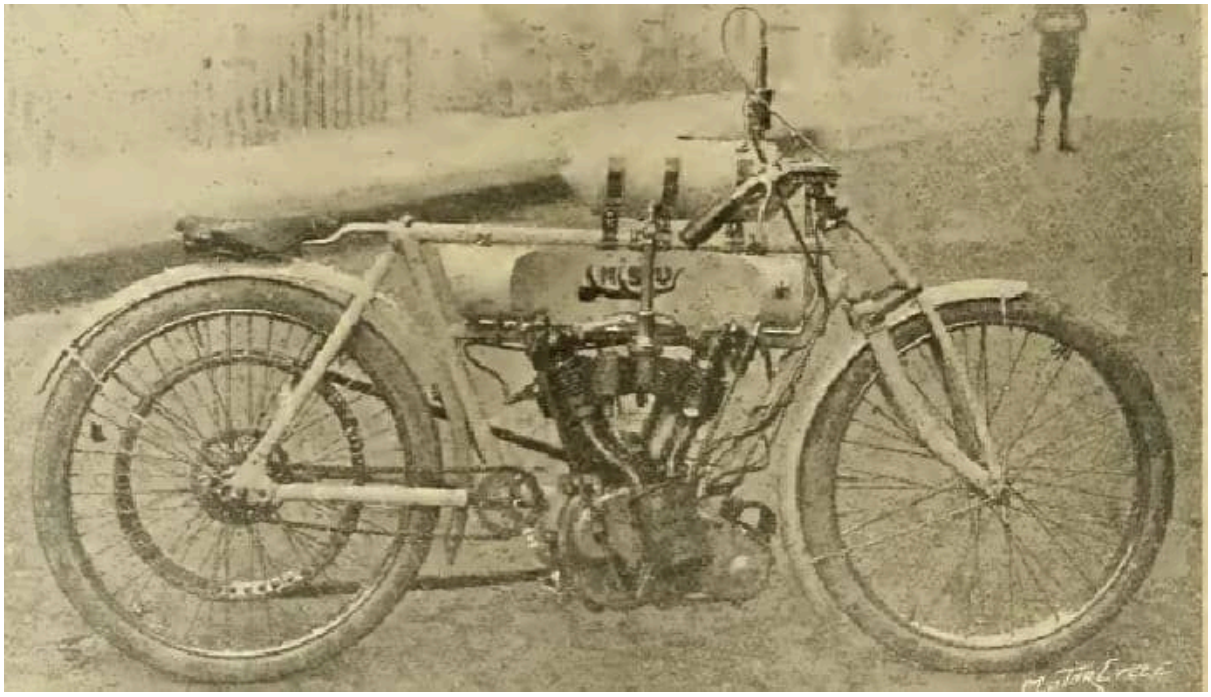
RIDERSREPORTEDproblems□ðndingpetrolin one-gallon tins; many suppliers were unwilling to open sealed two-gallon tins for them.



Bells, whistles–and a drum were used to clear the way.

IXION WROTE: "In the course of my motor cycling experience I must have tried practically every form of road clearer ever invented, even including those diabolical echo-wakers which are worked by the exhaust. The most eīective in a gentlemanly way that I have tried is the little 'driveline' whistle, or mouth siren." The KD mouth siren, for half a crown, was "guaranteed the best road clearer on the market". Or, for just a bob, there was the Motorcycle Tambourine, a small drum clipped to the fork which "sounds like a noisy drum". Riders were assured: "The eīect is startling."

NSU DEVELOPED AN 8hp (800cc) V-twin racer speci□ðcally for Brooklands and the Blue 'Un was clearly impressed: "The machine, to put it brie□ðy, is quite the most perfect high powered racing motor bicycle we have yet seen. Carried on the top bar is a large torpedo-shaped oil tank □ðtted with a pump operated by means of a Bowden wire attached to a lever □ðtted to the handle-bar, so that to give a charge of oil the racing man has no need to let go of the handle-bar and fumble for a tap. The engine is □ðtted with mechanically-operated inlet valves arranged on the overhead principle so eīectively carried out by the NSU Co. For the sake of lightness an aluminium crank-case has been provided, which is contrary to NSU practice. The Bosch magneto is gear driven, the gear wheels being enclosed in an aluminium gear case."



NSU built a racing V-twin with Brooklands in mind.

THE GERMAN MOTOR Cycle Association teamed up with the Silesian Balloon Club to stage a 'pursuit' in which seven motor cycles chased the balloon, Even though the aeronaut landed in an inaccessible woodland clearing the □ðrstbike, a 3hp Phanomen, reached it within 26 minutes. Following talks with the German War Oïice the association formed a 'volunteer motor cycling corps' including military training for would-be couriers.

Jake de Rosier made a name for himself on both sides of the Atlantic.

…andhere's Jake,aboard what looks like a prototype belt-driven cycle pacer. Yes, I did notice that the 'Indian' on the tank is not the factory's logo. YesI also noticed that the matching 'Indian' on Jake'ssweater is back-to-front. Maybe it's inside-out.

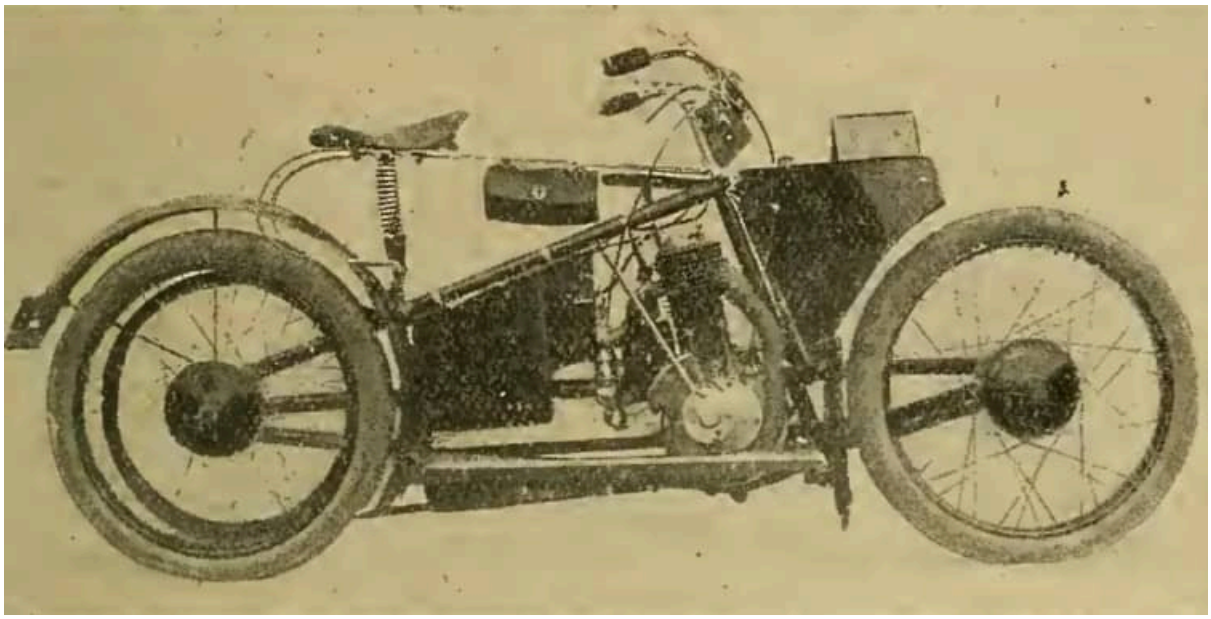
IN A FIVE-MILEeventat the Clifton, New Jerseytrack JakeDe Rosier covered a quarter mile in 13.4sec, half a mile in 27.6mph, a mile in 56sec and □ðvemilesin4min 52.2sec. "These times are certainly wonderful in view of the conditions under which they were accomplished," the Blue 'Un reported. "At anything like a mile a minute gait the riders experience a severe shock on the turns." De Rosierrode a 7hp Indian "driven almost entirely on the spark, which is controlled by the right handle grip, while the throttle is directly on top of the carburettor, and is thrown wide open after the machine is well started. Thechain drive is direct from the engine to the rear wheel." De Rosier's breakthrough race came at the 1908 Federation of American Motorcyclist (FAM)National Championships STPaterson, New Jersey.HE was the top rider of the meet and was signed to a full-time racing contract with Indian. From that point forward, De Rosierwon races nearly every weekend and soon became the acknowledged king of professional motorcycle racing.

RIDERSINTHEACUPenalty Run had to cover 72 miles within 3hr 45min and 4hr to win a medal. However, stopping for any reason incurred a 1s □ðne,asfailingto □ðnishwithin4hr. Failing to □ðnishwithin 4hr 30min cost 2s 6d (□ðneswerelimited to □ðvebob).

"IDON'T THINKmany of your readers know of Ailustite, a liquid preparation for putting inside air tubes to repair punctures. I put some inside mine nearly four months ago, and have never had to blow them up since. Thefront tyre was punctured when I put it in, and I have pulled out one nail from the back tyre and have not touched it since. I think if End-to-end riders were to use it they

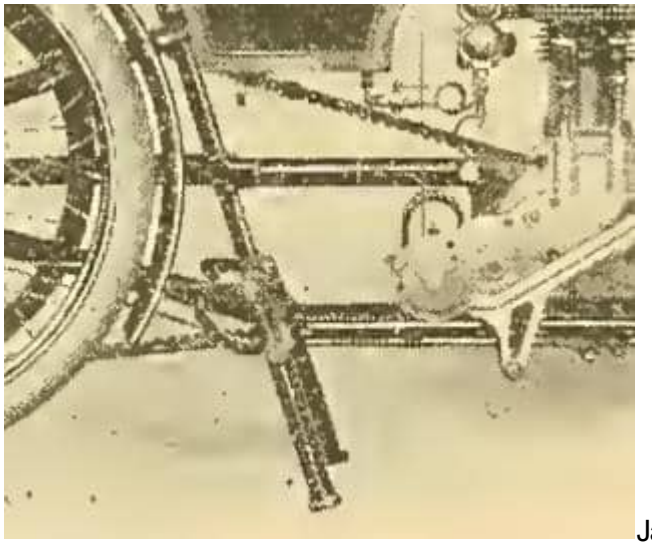
would not have any punctures to mend, and so save time and marks." The US equivalent was called Newmastic; its main ingredients were said to be glue, glucose, and glycerine.

LAURIN AND KLEMENT supplied a dozen 4hp single-cylinder, two speed sidecar outfits to the Mexican post Office.



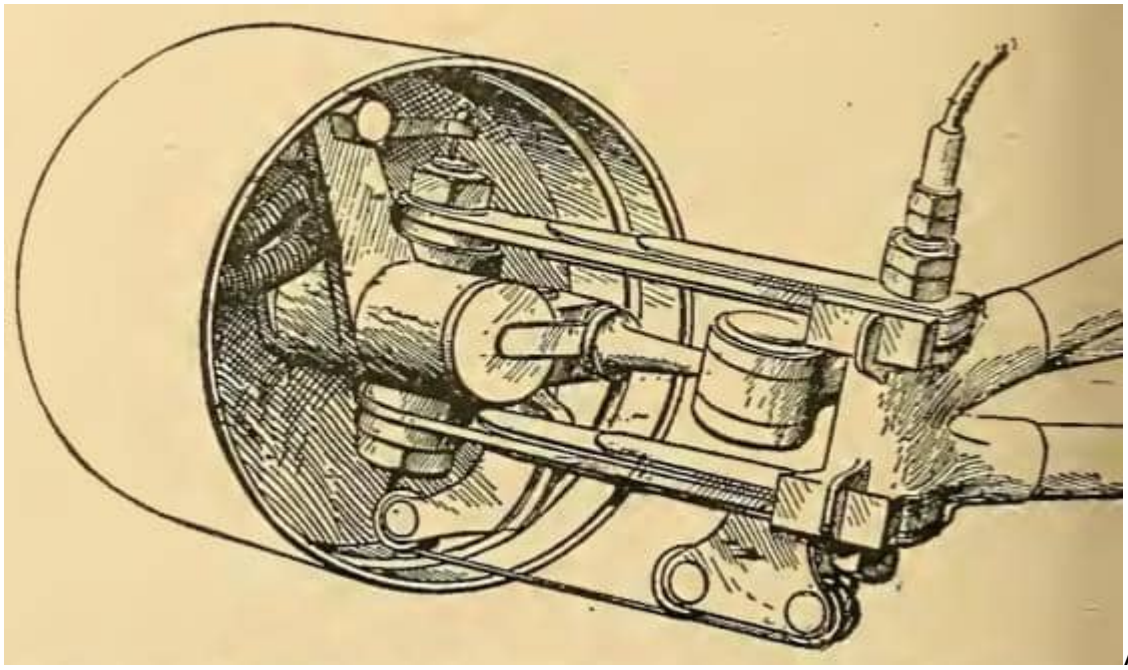
James stole the Stanley show with its 'one-track car'.

THE JAMES CYCLE COMPANY was a regular at the Stanley Show. No surprise there; James had started out making penny-farthings in 1880, two years after the show was established by the Stanley Cycling Club and James had made its first motorcycle in 1902.



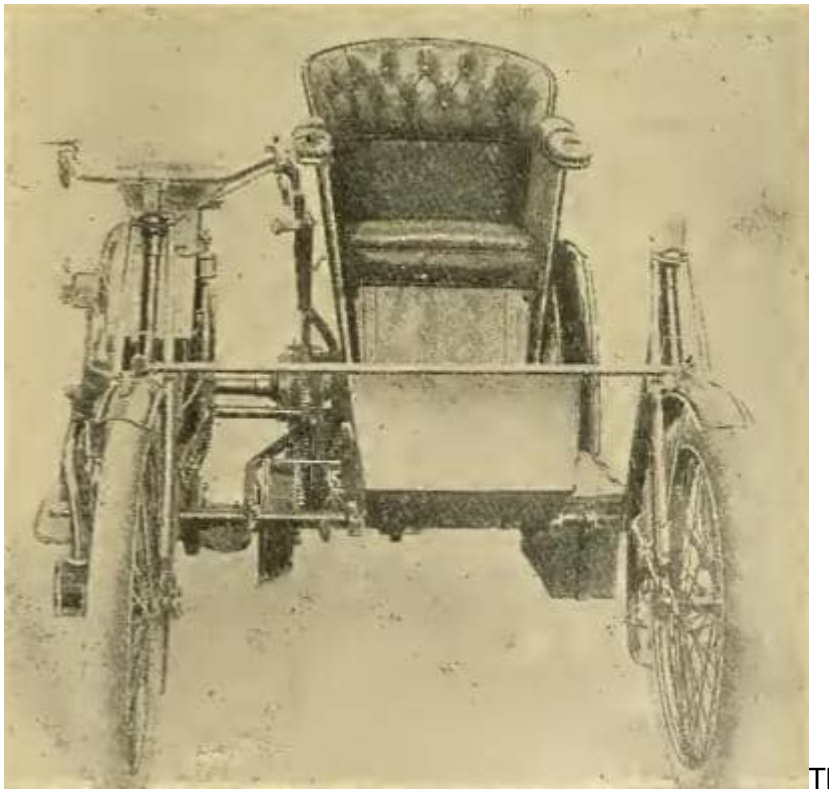
James even fitted what may have been the first centre stand

The show had expanded to display powered vehicles in 1896 and James had made its first motor cycle in 1902. And now it used the (32nd) show to launch its most radical design to date: the Safety model, which it described as a one-track car, not least because it featured hub-centre steering. All the frame tubes ran to the left of the interchangeable wheels,

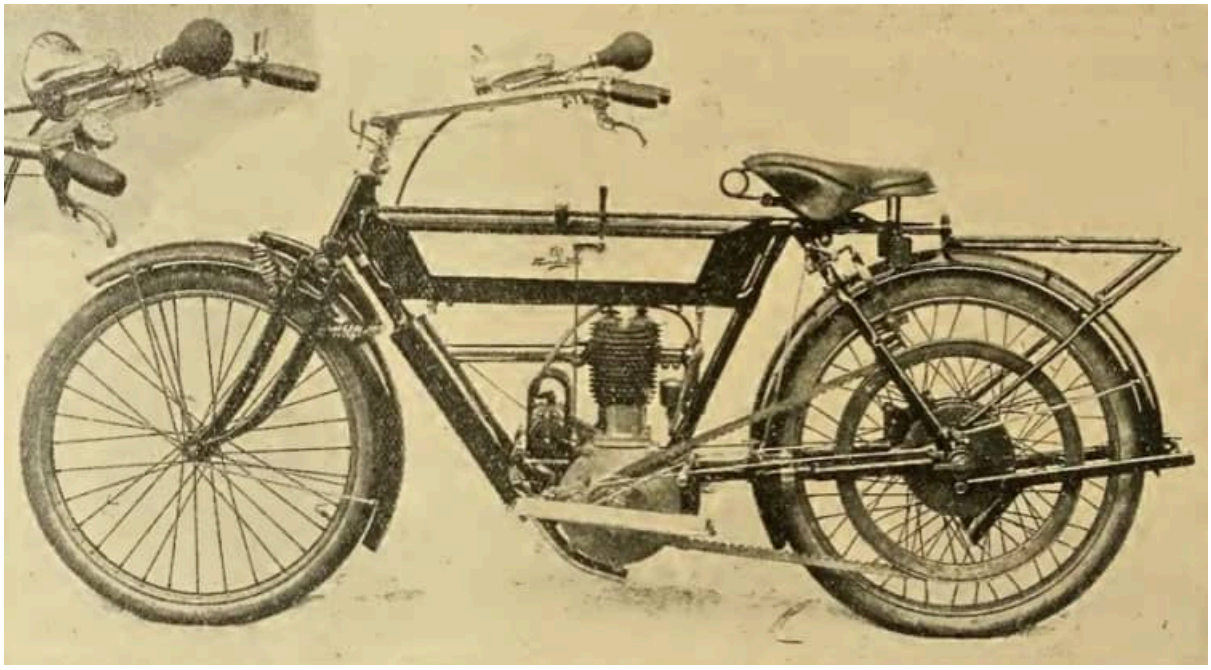


As well as leaf-spring suspension James □ðittedanexceptionally wide ‘internal expanding hub brake’ (later called drum brakes).

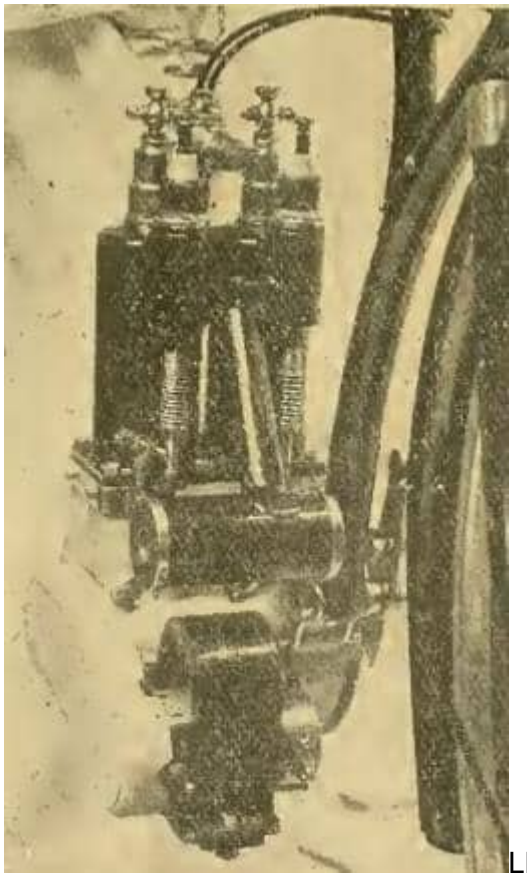
which sported (metal-to-metal) drum brakes. Thefuel tank doubled as the front mudguard, starting was by a handle with a free engine thanks to a sliding engine pulley so the rider could start the engine and pull away without running alongside. Comfort was further enhanced by laminated front springs, running boards and a saddle resting on □ðatsteelandcoil springs. Sparks for the inclined (to the rear) 523cc single-cylinder engine came from a chain driven magneto. Concentric valves (exhaust on the outside) were operated by a single ‘camwheel’ with a double cam for the exhaust and a single central cam for the inlet valve (which, thanks to a movable fulcrum on its rocking lever, featured variable lift). Not surprisingly, the one-track stole the show. PS, an American reporter described the Stanley Show as “the greatest of all motorcycle


The Bat's four-wheeler was packed with clever ideas.

exhibits". Bat's show model was more conventional but state of the art: a JAP-powered 9hp 1,100 V-twin out□ðtwith chain drive, diīerential and not two but three-speed sliding-gear transmission. Mind you, the transmission was mounted on the sidecar which had two wheels; bike and sidecar front wheels had Bat spring forks and the four-wheeler could easily be taken apart, leaving a single-speed but powerful solo. So actually the Bat was pretty radical in its own right. Humber also launched a new model at the Stanley show, in this case a 487cc, 3½hp sidevalve one-lunger with handle starter; the 500 single was emerging as a staple of the British industry. The handlebars incorporated a crossbar to hold accessories like a speedometer, horn, clock or club badge. The silencer was built into the downtube. A two-speed rear hub was available, with the gears selected by pedals on the left footboard. Yes, a foot operated gearchange.

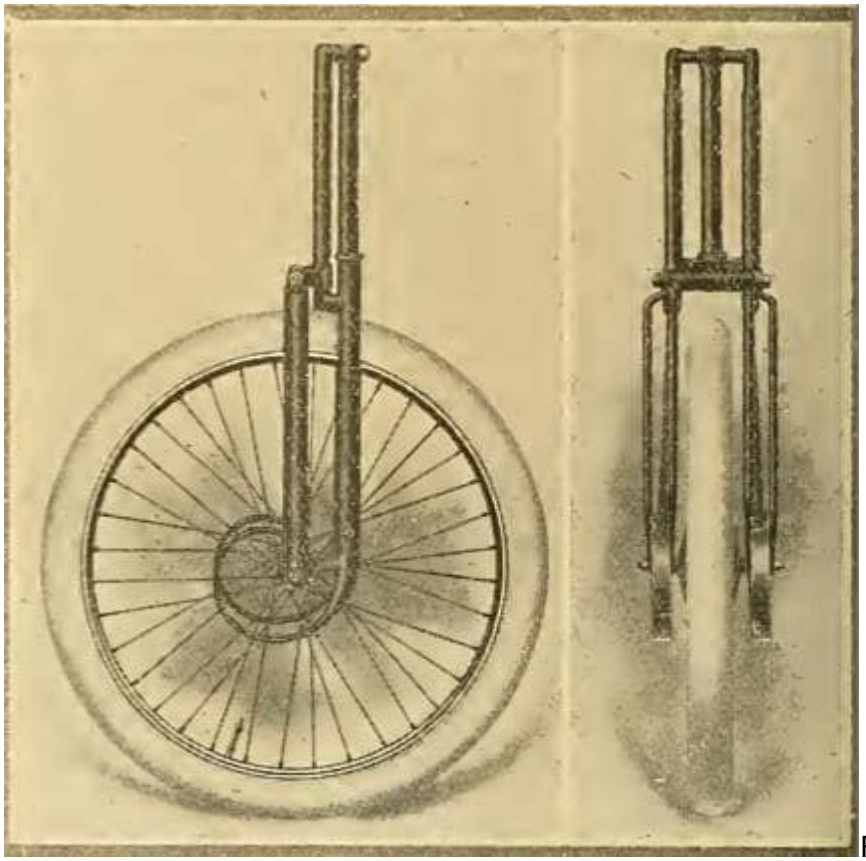


Humber's one-lunger featured an early form of foot-operated gearchange.



LMC oīset its engine.

LMC came up with a twostroke vertical twin mounted oī to the right of the frame for optimum cooling It was said to show no sign of overheating despite the lack of cooling □ðns.Themajor innovation from Roc was spring forks featuring C-springs.

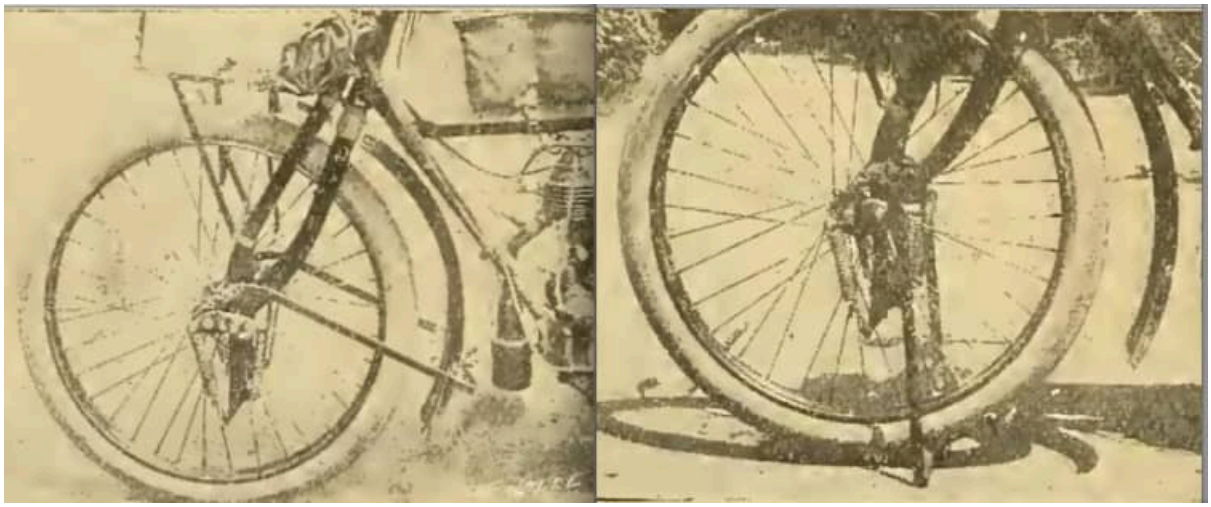

Roc forks bounced on C-springs.

“IT WAS GOOD TO SEE practically every machine at the Show □ðttedwitha stand-carrier and tool and luggage bags specially designed for it. The average motor bicycle is designed to look pretty, and its unfortunate purchaser has usually been compelled in the past to tie various unsuitable impedimenta all over it, until it has looked like a newly stocked gipsy caravan.”

NOISY BIKES WERE as unpopular in the USA as the UK: “Good, strong, dashing, eīective men, rushing to the task eagerly, early, hast thou no pity, no muīlers?”

THE US MOTORCYCLE Manufacturers Association was established; recruits included Reading Standard, Curtiss, Pierce, Auto-Bi, Harley, Marsh-Metz, Indian, Excelsior, Merkel, Thor, Curtis, Torpedo, Auto-Bi and Pierce. Its aims included gaining more prominence at shows and backing the FAM’s legislative and ‘good roads’ capaigns.

ITEMS OFFERED IN exchange for motor cycles in a single issue of The Motor Cycle included a talking cockatoo, gun, gold watch, diamond ring, drawing and bedroom suite, piano, furniture, lathe, gramophone, dynamo, musical box, violin, lantern, brazing forge, fretwork machine, pedal bicycles, a tandem and a motor car.



Ixion remarked that a front wheel stand would be a welcome innovation as it would facilitate puncture repair. Therefollowed a number of readers' letters with diagrams of their designs for such a stand, until a correspondent signing himself AH202 sent in these pictures of "a combined mudguard stay and stand which represent a device I had made for me more than two years ago, and it is extremely satisfactory in use. When the stand is required to be used, it is merely necessary to remove the butter□ðynut,when it can be swung down, and will raise the front wheel clear of the ground." Hey presto, the front wheel stand, as □ðttedtocountless motor cycles well into the 1960s; it looks to be spring loaded too. Well done, AH202.

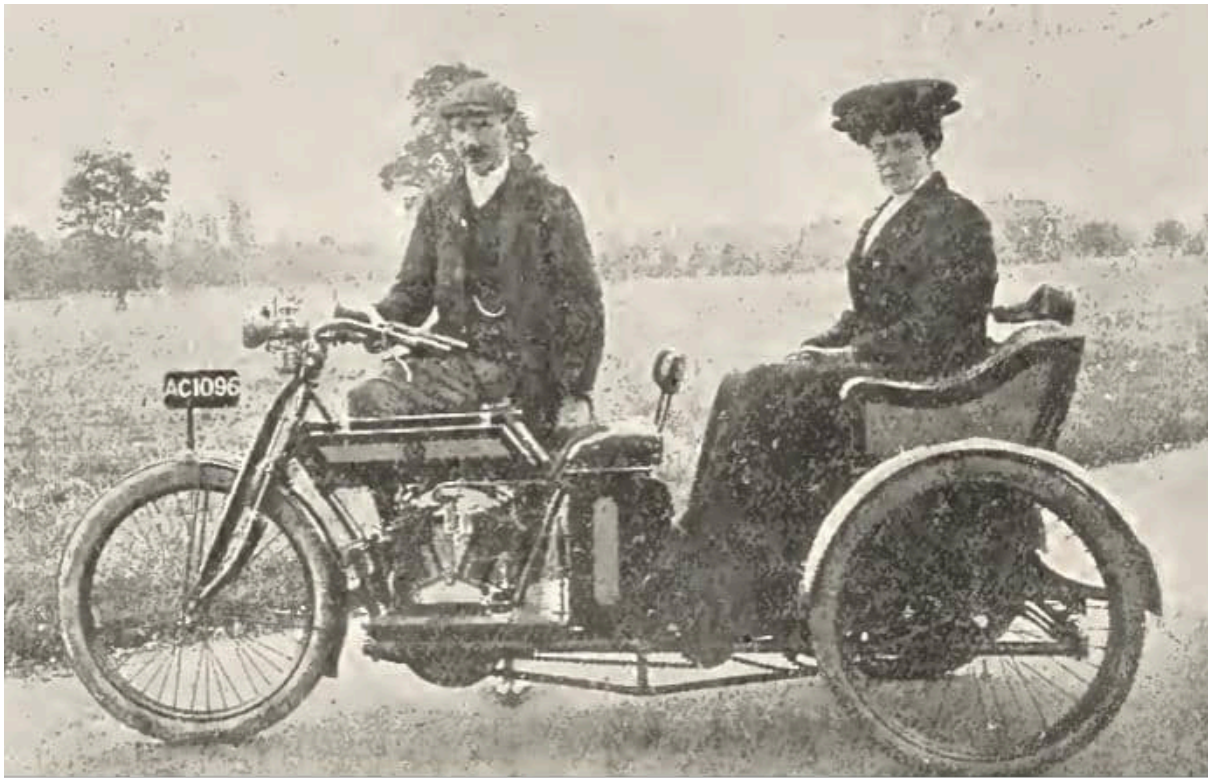
"THE MOTORCYCLESonexhibition [at the Paris Salon] are, speaking generally, very far behind the British motor cyclist's ideal…at present the motor cycle business is in the hands of two or three □ðrmsatmost,who do not appear to have made any great eī orts to keep their products up to date. For instance, it is an uncommon sight to □ðndamachine□ðttedwitha handlebar controlled carburettor…Sucharticles as stands and luggagecarriers are practically unknown, and the saddles are, in the majority of cases, more suited to path racing requirements than those of the touring or road riding motor cyclist…Wesearched in vain for footrests, and as for pedal applied belt rim brakes,admitted to be the best retarding device for a motor cycle, they were non-existent…Thechange-speedgear question does not appear to have ruīled the mind of French manufacturers." Exhibitors had declined from 46 in 1906 and 45 in 1907 to 31; the number of bikes on show was down from 108 and 98 to 79.

Walter Goerke leads the pack on his Indian.

WALTER GOERKE on a 5hp Indian won the Federation of American Motorcyclists 10-mile championship at Morris Park, New York, ahead of Fred Huyek and AG Chappie. Goerke's time was 10min 45.4sec.

"AN AMERICAN MOTORCYCLING paper reached me by the last mail, and apparently our Yankee confreres are rather sprightly when they let them-selves go. Their oīicial organisation has been holding what it calls a 'bing bang fest', in process of which they passed through a dark, low tunnel, on emerging from which each member received a hearty smack from a harlequin's wand containing a blank cartridge. The next excitement consisted of stepping on a metal plate coupled op to an ignition coil, which dealt out some juicy shocks. It would be amusing to see the staid oīicials of our own ACU indulging in such antics."

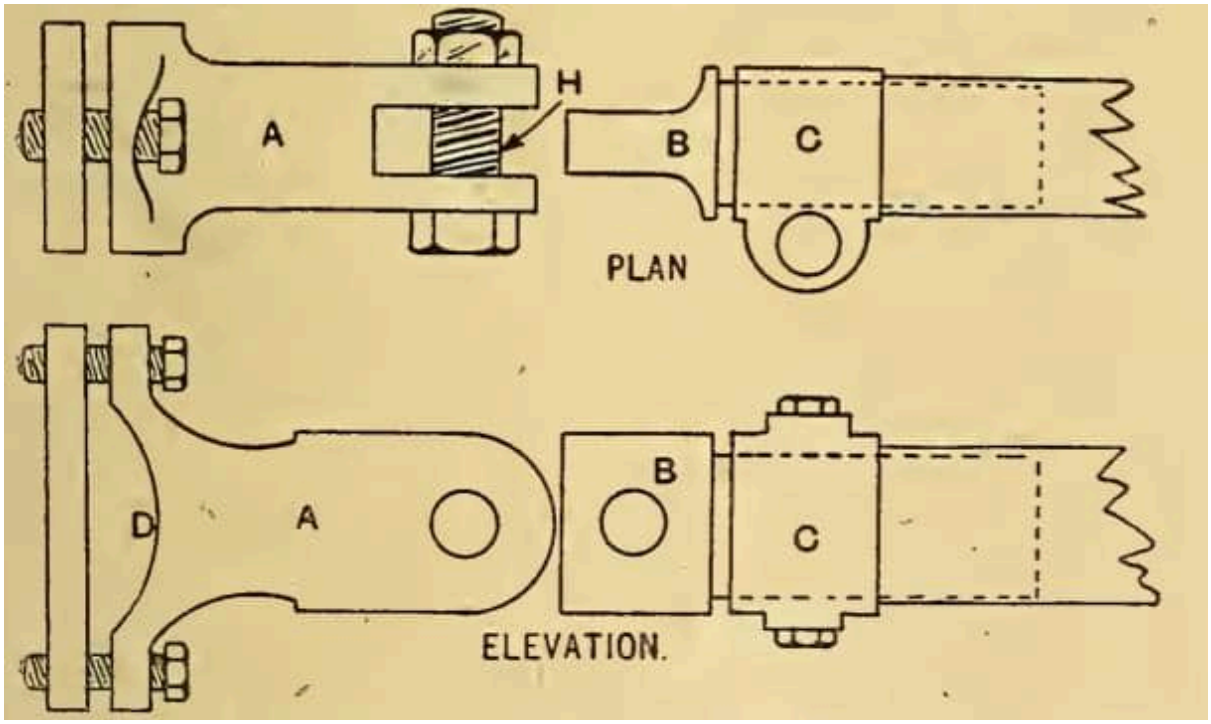
A SINGLE ISSUE of The Motor Cycle carried stories and correspondence from New Zealand, South Australia, Tasmania, Ceylon, Vancouver, Nyasaland, South Africa, Canada, Long Island, America, Normandy, Brittany, France, Germany, Denmark, and Belgium.



Mr Warr built a functional trike with □ðnelines.

JOHNWARROFLeamingtom, described simply as ‘an amateur’ built “a home-made three-wheeled passengermotor cycle” (or as we’d say, ‘trike’) using the rear axle oī an old quad with diīerential, all-chain drive, two-speed transmission and, thanks to its 7hp PeugeotV-twin lump (as used in Rem Fowler’s 1907 TTwinner) a top speed of 40mph on the □ðat. Therewasa comfy padded seat with backrest for the rider, ahead of a luxurious armchair for the passenger. “My freak is original,” he said, “and I claim nothing for it but that.” Ixion commented: “This type of motor cycle is simply ideal for winter work, particularly with a two-speed gear. It is absolutely immune from side-slip, and, though the steering is diametrically diīerent from that of a bicycle, when once the rider is at home on it, there is no limit of speed as far as safety is concerned.”

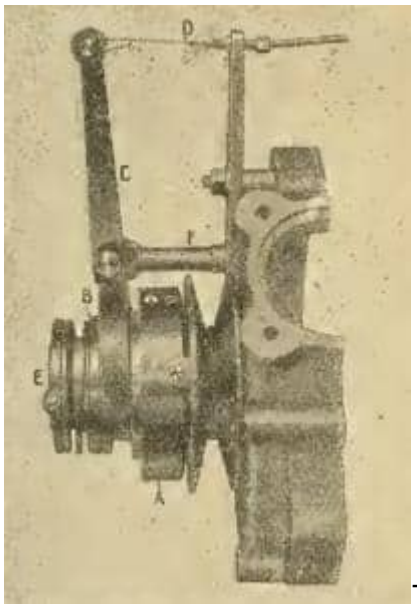
THEINLAND REVENUEreportedthat by year’s end 32,355 motor cycles had been licensed in Englandand Wales and 3,429 in Scotland. Irish motor cyclists could ride tax free, but that situation was not expectedto last much longer.



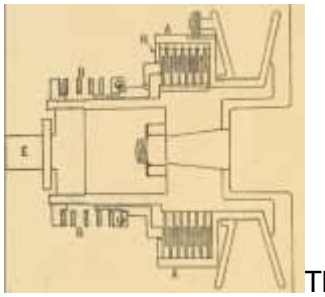
Designed by an enthusiast, this type of sidecar □öttingsbecameubiquitous.

BILLWILLIAMS,ANorth London enthusiast designed what he called ‘instantly detachable’ sidecar □öttingwhichhehad manufactured by Chater-Lea. To any 21st century combo rider they look like…sidecar □öttings.Itseems Mr Williams designed the type of telescopic □öttingsand clamps that became ubiquitous. Well done that man.

ITWASA GOODyear for inventive designers. TheMabon company came up with a “free-engine pulley and metal-to-metal disc clutch” comprising“a number of steel discs held in frictional contact by a coil spring”. Theclutch was“operated by a Bowden wire connected to a Bowden lever on the handle-bar of the



TheMabon clutch operating arm is immediately recognisable.


The Mabon clutch design got it right.

motor cycle. This lever on the handle-bar is provided with a stop, which holds the lever in such a position the clutch is entirely released and the pulley remains stationary, while the engine is started by means of a handle, which can be attached to the main shaft of the engine…"The phrases 'clutch lever' and 'clutch cable' had yet to be coined but it all sounds remarkably modern.

AMERICAN BICYCLE CLUBS routinely staged 'century runs' of 100 miles; a 'road oīicer' of the New York MC admitted that "motorcyclists have long been a good-natured joke with the old guard of the Push Bike Brigade". In response to this he arranged a series of 'double-century' runs, predicting: "This should appeal to the majority of motorcyclists and should prove to be a very easy task, as the motorcycle of to-day has reached such a perfect state of reliability." Of the 28 bikes to complete the □ðrst 200-mile run, 17 were imports. The club oīicer wrote: "Two years ago there were practically no foreign machines in the New York MC. Now almost every experienced rider in the club rides a foreign machine." The club also planned "the □ðrst 24-hour reliability run held this side of the Atlantic".

Messrs Huyck, Dusell and Sicard on their Thors in the FAM Endurance Run.

THE FAM, AMERICAN counterpart of the ACU, also ran a long-distance trial, which they called an Endurance Run (but, being American, as well as gold medals for perfect scores, the FAM awarded 15 Diamond Medals for "Perfect score plus □ðve points for most consistent running"). The two-day, 354-mile

George Hendee issuing instructions to a member of the Indian team.

run included a time trial, as well as hill-climbing and brake tests. FAM vice-president TK Hastings, who had won gold medals in the ACU's London-Edinburgh and End-to-End trials, did just as well on his home ground by winning the 'Private Owners' class. Walter Davidson riding, as you'd expect, a Harley, won the Trade Riders class. Of 63 starters 32 □ðnished. This was described as "a splendid record…the present run has "demonstrated beyond a doubt that there has been marvellous advance in motorcycle reliability". The □ðrst 100 mile included "hills and mountains and some of the men thought they were in □ðying machines, as they actually bounded from boulder to boulder…there were stretches of four to □ðve miles that bore every appearance of having been mined and turned up by a retreating army…ita ord proof positive that the US Army could well a ord to equip its engineer corps and scouts with motorcycles. This was, indeed, a test of tests, and no warrior could possibly meet with worse conditions in the strenuous life of war." Louis Steinhauser, a rising star on the track, failed to □ðnish, after he "struck a large boulder, was tossed 15 feet in the air and the machine was entirely wrecked" (Steinhauser walked, or limped, away with minor injuries). Further down the road "the redoubtable Bill Wray, known as the 'Policeman's Pet' because they always pinch him upon the slightest provocation, had his machine suspended by the tracing chains to an apple tree and was trying to make it go…it looked like a huge ornament hunng on a Christmas tree. Wray was all excitement and his mechanical ability was fast oozing out of his □ðngertips." Wray was advised to "look at the carbons on the magneto and tape the wire fast"…it worked □ðne, and he started o at a speed simply wonderful." Traderiders had support teams: "Messrs Hendee and Hedstrom (Indian) were in evidence

Theodore Hastings won gold on both sides of the Atlantic.

every foot of the way and they nursed their men as tenderly as babes. Reading Standard also had a man on the job throughout the Endurance Run. He went ahead of the run and arranged gasoline and oil at various stations." It was reported that "the contestants all agree that this was the toughest rider of its kind ever made in this country". And after all that the oīicial results were delayed by two days because "one of the score sheets is missing. Some idiot has wandered oī with it and the chief scorers are hunting all over God's green earth trying to locate him."

FROM MANCHESTER CAME the Tesametyre which was claimed to be puncture proof thanks to a "patent steel woven section which is inserted between the layers of canvas which form the casing of the cover…The makers state that they are quite willing to let anybody strew nails and glass on a road and ride over them."

THE SPORTSMAN'S SHOW at Madison Square Gardens, New York included a 'Motorcycle Row'. Stands featured FN (also promoted by the FN Motor Club of America), the Nala two-speed hub, NSU, Minerva, Indian and Thor. An American pundit wrote: "We regret that there were not more American motorcycles represented at the exhibit."

This Indian twin ‘tandem’ is a remarkable survivor; as well as the iconic ‘camelback’ fuel tank on the rear mudguard it sports an auxiliary saddle tank of a type that wouldn’t come into common use for another 20 years.

THE AUSTRIAN ARMY adopted motor cycles for the rapid laying □ðeld-telegraph cables.

1908 Dimanche 24 Mai 1908
Cyclisme.
— La vieille bicyclette, c'est la tranquillité même, avec une dame devant en voiturette, pour amortir en cas de pelle ou de rencontre.

This rather □ðne page from a calendar indicates that forecarists were well aware of the protection aīorded by a substantial passenger: “The old bicycle is tranquility at its best, with a lady in front in a carriage to act as a buīer in case of a crash. The old bicycle is tranquility itself, with a lady in front in a cart, to cushion in case of a crash or a spill.”

ADVERTS OFFER A FASCINATING insight into the variety and cost of contemporary motor cycles, accessories, components and protective clothing. Here’s a sample of the ads that were tempting enthusiasts in 1908…

TRANSFERS

For Motor Cycles, Tricars, Bicycles, etc.,

¶ The machines you make or sell should carry a transfer of original design, which is a constant and lasting advertisement for you.

¶ If you will send us the wording and say whether you prefer gold only, or gold and colours, we will submit an original design to you FREE OF COST.

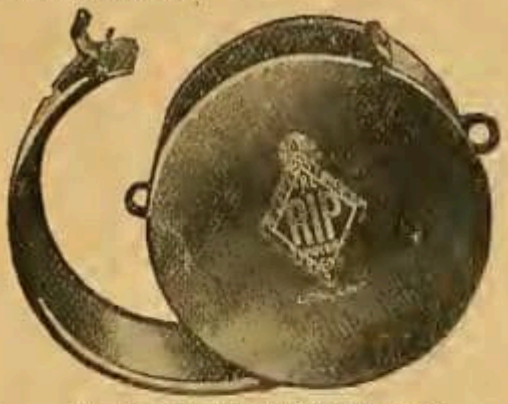
OUR PRICES ARE LOW, BUT WE ARE UNSURPASSED FOR QUALITY.

Crests or Monograms a Speciality.

ILIFFE & SONS LIMITED,

Transfer Specialists, COVENTRY.

AT LAST. A long felt want in the shape of a carrier for spare tubes for motor cycles has arrived. Far better than the old and barbarous method of carrying tubes in the tool-bag. Fits on front forks. Lined with felt.



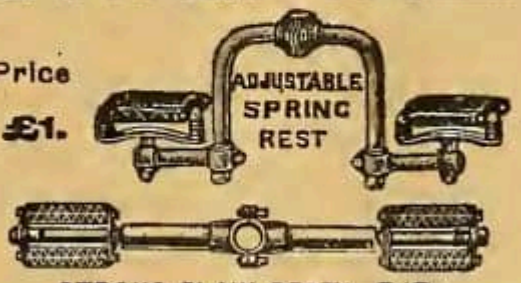
Prices: Quality A 7/6, B 4/6.

1st quality superior box and lined two colours. 2nd quality lacke enamelled and gold transfer. Belt boxes to match. Will take 9ft. ⅞ or 1in. **A QUALITY 8/6; B QUALITY 5/6.** Trade terms upon request. Immediate delivery. Nat. Tel. 433.

MAUDE'S MOTOR MART, Powell St., HALIFAX.

ORIGINAL.

Price **£1.**



STRONG PLAIN RESTS, **8/6,**

A. G. WRIGHT, 5, LORRIMORE BLDGS., WALWORTH.

Cut and polished, 3in., 3¼in., 3½in., 1/9; 3¾in., 2/-; 4in., 2/6; 4¼in., 2/9; 4½in., 3/-; 4¾in., 3/6; 5in., 4/-.

PAYNE, Metchley Lane, Harborne.

MOTOR BICYCLES FOR SALE.

3½ h.p. Tourist Rex, not ridden 60 miles, as new; £25.—Todd, grocer, Pocklington.

2¾ h.p. Alldays Motor Bike, vertical engine; £10 10s.—190, Mellison Road, Tooting.

£10.—2¾ h.p. Minerva motor bike, M.O.V., in good order.—Jones, ironmonger, Lichfield.

ON Sale, 3½ h.p. Rex, long bars, low seat, new Peter-Union on back; ready for road; £12.

ALSO Beeston Tricycle, about 3½ h.p., magneto, Longuemare, 2½ Clipper tyres; £6, or first near offer.

EDISON Phonograph and about 50 records, two horns, stand, complete; £2 10s.—801, Oldham Road, Newton Heath, Manchester.

2¾ h.p. Minerva (inclined); £8 10s., or near offer.—79, King George Street, Greenwich, S.E.

£5.—Quadrant Autocyclette, complete, 1¾ h.p., spare cover, etc.—Leach, Bury Green, Ware.

2½ h.p. Ormonde, in good running order; £8 10s., or near offer.—Victor Wood, Beeding.

ROC 4 h.p. Military Model, magneto, mechanical valves, free engine clutch; £22 10s.—Below.

ROC, 3½ h.p., free engine clutch, magneto; cheap, £18 10s. — Whittle, 41, Skelbrook Street, Earlsfield.

3½ h.p. Norton, magneto, spring forks, long and low; cheap; £30.—Fortune, solicitor, Harrogate.

£15.—3½ h.p. Riley motor bike, 2½ Palmer tyres, in splendid condition.—Jones, ironmonger, Lichfield.

MINERVA Lightweight, absolutely like new; £12, or offer.—62, Colvestone Crescent, Dalston, London.

1907 3½ h.p. Rex, lamp, horn, tools, complete, not done 500 miles; £19 10s.—Richard, Dolafon, Corwen.

3 h.p. Werner, in extra good condition, Dunlops, Brooks B100, scarcely used.—235, Rochdale Road, Bury.

MINERVA, 2½ h.p., Palmer, good condition; any trial; bargain, £8.—6, Islip Street, Kentish Town, N.W.

3½ h.p. Bat, spring frame and forks, fast and reliable.—1, Colville Square Terrace, Talbot Road, W.

2¾ h.p. De Dion, spring forks, tyres, and throughout good condition; £10.—Wilcocks, Trebartha, Launceston.

6 h.p. Deckert Racing Motor Bicycle, perfect condition; £12 10s. — Alfred Mayer, 32, Pembridge Gardens, W.

6 h.p. Twin Zedel, ball bearing engine, prize winner, very fast, complete; £19 10s.—98, Potternewton Lane, Leeds.

4 h.p. Antoine, Chater-Lea fittings, Dunlop and Grose non-skid tyres; sacrifice £19.—47, Camden Grove, Peckham.

3½ h.p. Viudec, magneto ignition, Palmer 26 by 2½ tyres, B100 saddle; £21.—Eagles and Co., High Street, Acton.

2¾ h.p. De Dion, Chater-Lea throughout, new Palmer tyres, splendid condition; £6 10s.—42, Forest Lane, Maryland Point.

MANCHESTER.—3 h.p. Bradbury, Longuemare, trembler, two pulleys; bargain, £12 10s.—"Motorist," 158, Chorlton Road.

60 REXES IN STOCK, including

5½ h.p. REX DE LUXE, magneto, twin tyres, black finish	£30 0
5½ h.p. DE LUXE, single tyres	27 10
6 h.p. TWIN REX, cantilever	22 0
6 h.p. TWIN REX, non-skid	22 0
3½ h.p. REX, 1907, shop-soiled	19 19
3½ h.p. REX, magneto, speed pulley	18 18
3½ h.p. REX, 1907, grand condition	16 16
3½ h.p. REX, spring forks, 26" wheels	12 12
6 h.p. TWIN REX, black finish	23 0
3½ h.p. REX, 50-guinea model	10 10

All guaranteed. Special terms for cash.

CASH, CREDIT, OR EXCHANGE.

6 h.p. TWIN ANTOINE, like new	£22 10
6 h.p. TWIN ANTOINE sets, new	19 19
5 h.p. TWIN KERRY, smart machine	22 10
5 h.p. TWIN G.B., magneto, spring forks	25 10
TWIN CLEMENT-GARRARD, spring forks, two speeds, 2½" Palmers	18 18
4 h.p. STEVENS, torpedo tank	16 16
3½ h.p. N.S.U., magneto, 2½" tyres	22 10
3½ h.p. MINERVA (1907), shop-soiled spring forks, 2½" tyres, stand	25 10
3½ h.p. MINERVA, very smart	18 18
3½ h.p. CHATER-LEA, vertical engine	13 13
3½ h.p. ROVER, free engine, spring forks	13 13
3½ h.p. QUADRANT (1907), shop-soiled	25 10
3½ h.p. QUADRANT, brand new (1908), offers.	
2½ h.p. KERRY, tyres like new	11 10
2½ h.p. KERRY, low and smart	10 10
3 h.p. HUMBER, free engine	11 10
3 h.p. ARIEL, 26" wheels, M.O.V.	11 10
2½ h.p. ARIEL-MINERVA, low	11 10
3 h.p. WERNER, fitted Shaw engine	12 12
3½ h.p. WHITELEY, spray, good tyres	8 15
3 h.p. CLYDE, M.O.V., magneto	11 10

LIGHTWEIGHTS. SPECIAL OFFERS.

2½ h.p. SPARK, vertical engine, magneto	£10 10
2½ h.p. JAP, good tyres, reliable	8 15
3 h.p. CALVERT, vertical engine, low	8 15
2½ h.p. DE DION, vertical engine	8 15
2½ h.p. SAROLEA, vertical, spring forks	9 15
2½ h.p. DE DION, vertical, less tank	6 15
2½ h.p. CENTAUR, enamel like new	8 15
2½ h.p. MINERVA, vertical, low	9 10
2½ h.p. MINERVA, grand condition	8 15
2½ h.p. REX, vertical, spray	8 15
1½ h.p. MINERVA, good condition	6 15
1½ h.p. QUADRANT, very reliable	6 15
1½ h.p. MINERVA, very fast	5 15

Push cycles part payment.

TRICARS.

10 h.p. TWIN REXETTE, open sprung frame, two speeds, special finish	£45 10
5 h.p. HUMBER, open frame, two speeds, wheel steering, smart	35 0
4½ h.p. HUMBER, Phelon & Moore, two-speed gear, wheel steering	22 10
4 h.p. TRENT, open frame, wheel steering, two speeds	22 10
5½ h.p. REX Tricar, two speeds, open frame, wheel steering, seats three	35 0
6 h.p. REX Tricar, magneto, twin cylinders, four-speed pulley	32 10
4 h.p. ANTOINE, M.O.V., smart	18 18

SIDECARS.

MILLS-FULFORD, castor wheel	£8 0
MILLS-FULFORD, rigid type	5 0
Attachment for converting bicycle to tricycle, tyres like new	3 15
ARIEL Coupler	1 15

MOTOR TRICYCLES.

2½ h.p. HUMBER, tyres worth the money	£6 10

ENGINES.

New 6 h.p. TWIN ANTOINE, complete	£8 5
4 h.p. ANTOINE, M.O.V., complete	6 5
New 5 h.p. Tricar engine, M.O.V.	5 5
6 h.p. AVON, W.C., M.O.V., up-to-date	8 5
4 h.p. ROC, M.O.V., magneto, nearly new	9 5
3½ h.p. BUCHET, good order	3 15
2½ h.p. NOBLE, M.O.V., vertical	3 0
2 h.p. MINERVA, M.O.V.	3 0
2 h.p. MINERVA, inclined	2 0
2 h.p. MADISON, good order	1 15
1½ h.p. QUADRANT motor set	2 15
2½ h.p. BUCHET, nearly new, light	8 10

Smaller engines taken in exchange.

High-class motor cycles wanted for cash.

H. BOOTH,

CORONET WORKS, WADE STREET,

HALIFAX.

Telephone 0280.

AS New, 1¾-2 h.p. Wearwell Lightweight motor cycle; take good push cycle and cash.—D. Jackson, Post Office, Larkhall Lane, S.W.

2 h.p. M.V. Eadie-Minerva, new frame, tank, engine, and tyres, one season; £7 10s.; resell easily; photo, stamp.—240, Oakley Road, Redditch.

ONLY Wants Seeing.—3½ to 4 h.p. spring frame Bat and sidecar, rigid type, in excellent condition.—137, St. Giles Road, Derby. £24.

TRIUMPH, 1907, magneto, perfect, and practically new, spares, acetylene lamp, etc.; £56, lowest; will guarantee it. —Wildman, Berkswell, Coventry.

MINERVA, 2-3 h.p., vertical, low, 26in. wheels, good tyres, long bars, smart, excellent going order; £13.—52, Fullerton Road, Wandsworth.

3 h.p. Brown, Palmers, low, new belt, climb anything; ride 50 miles to purchaser; £11. — Millard, Belvedere. Wanted, sidecar body.

1907 Triumph, 3½ h.p., magneto, bought August, condition like new, lamp, horn, spares, tools; £53.—Harborne, Cambridge Road, Wanstead, N.E.

5 h.p. Kerry, powerful engine, four speeds, free engine; cheap for cash, in good condition. — Gould, High Street, Steyning, Sussex.

F.N., 2¾ h.p., almost new, magneto, spring forks, 26 by 2½ butted tubes, new belt, spares; bargain, £18.—8, Priory Place, Well Street, Hackney.

4 h.p. Roc, with two-speed gear, latest pattern, quite new, only ridden 100 miles, magneto ignition; £31 10s.—Eagles and Co., High Street, Acton.

HUDDERSFIELD Agents for Triumph, N.S.U., Brown, Roc, Phelon and Moore, and Vindec; machines in stock.—Moldgreen Engineering Works.

3½ h.p. Minerva, magneto, and spring forks, footboards, Palmer cord back, and new front tyres; lowest £20.—Horner, 28, Burley Road, Leeds.

2½ h.p. Lightweight, Palmer 26 by 2 tyres; £8 10s.; exchange.—Horner, 28, Burley Road, Leeds.

3¾ h.p. Rex, in splendid condition, tyre quite good, engine in good running order; 11 guineas, or offers.—Walden, The Laurels, Carshalton Grove, Sutton.

5 h.p. Twin Peugeot, with sidecar, free engine clutch, lamp, spares, splendid hill-climber; best offer over £21.—29, Clarendon Road, Seacombe, Cheshire.

MINERVA, 2¾ h.p., perfect condition, plating and enamel like new, spring forks, new back cover, all spares; £20.—G. Bentley, Sandy Lane, Royton.

NOT Racer, but very reliable 2¾ h.p. Minerva, Eadie fittings throughout, Palmers, Wataswata; cost £52, offers.—Davis, 133, Lionel Street, Birmingham.

3 h.p. Rover, 26 by 2½ non-skid, Whittle, Longuemare, complete, good running order, thoroughly reliable, suit beginner; £13 10s.—29, Prince Street, Bristol.

MINERVA, 2 h.p., light machine, in good condition; trial allowed; £8, or would exchange for rigid sidecar and £4.—Letters, 60, Brouncker Road, Acton, W.

BAT, 2¾ h.p. De Dion, spring frame, 40 miles hour, absolutely perfect; ride reasonable distance to customer; bargain, £15 10s.—Enderby, Spilsby Road, Boston.

Another
"Dreadnought"
DREADNOUGHT
CLINCHER
MOTOR-CYCLE TYRE

Weather Makes No Difference.

PROVIDED YOU HAVE THE RIGHT TYRES AND THE RIGHT CLOTHING.

We have told you of the tyres (and the prices), now here is the clothing, the **PRACTICAL** kind:

"GAMAGE WEATHERPROOFS"

These are made in either single or double texture cloths, the former are of course considerably lower in price than the latter, but from practical experience we cannot recommend them for motoring use. The following prices therefore are for best stout double-texture materials only, the other kind will be found priced in our 100 page list.

SINGLE BREASTED JACKETS, 24/6, 28/6, 32/6, 37/6.

DOUBLE BREASTED ditto, with deep Prussian collar, **3/6** extra.

LEGGINGS, with gaiter fronts or **OVERALLS,** cut straight (as illustrated) to wear over trousers **10/11, 12/11, 16/6** and **21/-** the pair.

CAP COVERS, with flap for protection of back of head, **4/6, 5/6, 6/6** and **7/11.**

DON'T BUY 'CHEAP WATERPROOFS'

They are not cheap, and are not waterproof.

VALVES
MILD STEEL CASE HARDENED NICKEL STEEL
ALL SIZES FROM 1/6
PISTON RINGS
OUR SPECIAL CASTS
ALL SIZES FROM 3 FOR 2/0
REBORING
AND IMPROVED VARIABLE COMPRESSION SECURE GUDGEON
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PLEASE GET OUR LATEST LIST FREE
THE MARCH MANUFACTURING Co. CLIFFE ROAD. SHEFFIELD.

Elastes users leave their repair outfits at home,

simply because they have no use for them. Your tyres filled with Elastes become puncture-proof. They never require removal and you get the same resilience as though you were running under the old air conditions. Next time you pass a Dunlop depot drop in and request a demonstration, or what is better still, write us to-night for more particulars. Will you ?

THE ELASTES CO., LTD.,

79-80, York St., Westminster,

Telegrams: " Elastesque, London." **LONDON, S.W.**

Telephone: 2173 Victoria.

You remember the result of that fellow's front tyre puncturing, don't you?

You have to be told it's not air.
Tyre bills reduced to a minimum.
Touring pleasures doubled
Pumps and delays dispensed with.

"I am bound to say I should never have suspected that the tyres were other than pneumatics had I not been told."
—*Bystander*

Whilst in hospital he's having his tyres filled with

ELASTES

The best thing "[in]" tyres.

THE ELASTES CO., LTD.,
79-80, York Street,
WESTMINSTER, LONDON, S.W.

Telegrams: "Elastesque, London." **Obtainable at all Dunlop Depots.** Telephone 2173 Victoria.

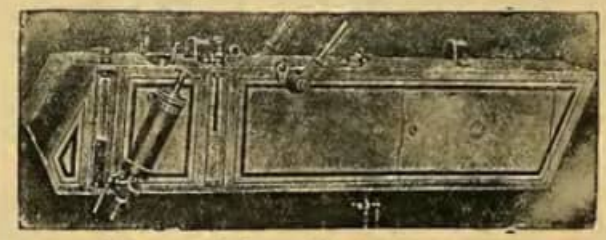
In answering either of these advertisements it is desirable that you mention "The Motor Cycle."

For **1908** the leading makers are adopting

DAVISON PETROL AND OIL GAUGES.

You need not wait, however. They can be fitted to your existing machine quite easily.

Send for List of Davison Specialities— All "a little better."



High Class Tanks of any design supplied promptly.

A. C. DAVISON, 12a, Pleasant Row, High Street, Camden Town, LONDON, N.

THE GRIP MOTOR CYCLE HANDLE.

Black Buffalo Horn Handle, **2/6** per pair free, with solution for fixing. Give size of handle-bar.
HILL BROS., 32, Broom Close, Sheffield.

POLICE TRAPS DEFIED

if you use a

HANDLE-BAR MIRROR.

3in. diameter, 5/3 { POST
4in. „ 6 3 { FREE

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St. George's Place,
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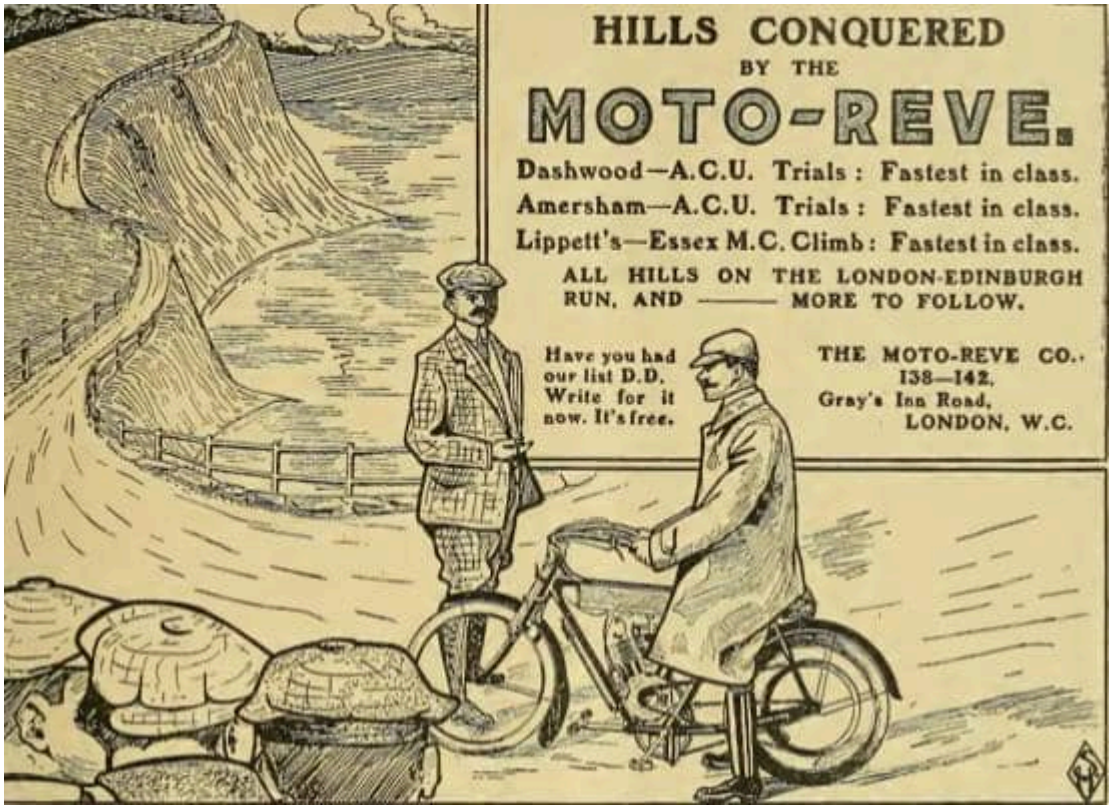
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BY THE
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Dashwood—A.C.U. Trials: Fastest in class.
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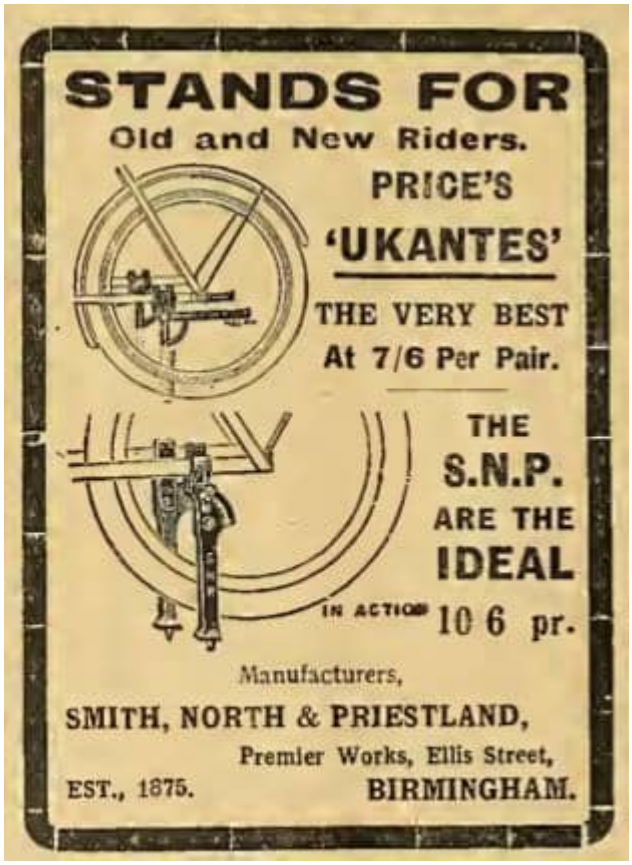
Lippett's—Essex M.C. Climb: Fastest in class.
ALL HILLS ON THE LONDON-EDINBURGH RUN, AND —— MORE TO FOLLOW.
Have you had our list D.D. Write for it now. It's free.
THE MOTO-REVE CO.,
138—142,
Gray's Inn Road,
LONDON, W.C.


STANDS FOR
Old and New Riders.
PRICE'S
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THE VERY BEST
At 7/6 Per Pair.
THE
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ARE THE
IDEAL
IN ACTION
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Manufacturers,
SMITH, NORTH & PRIESTLAND,
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EST., 1875.
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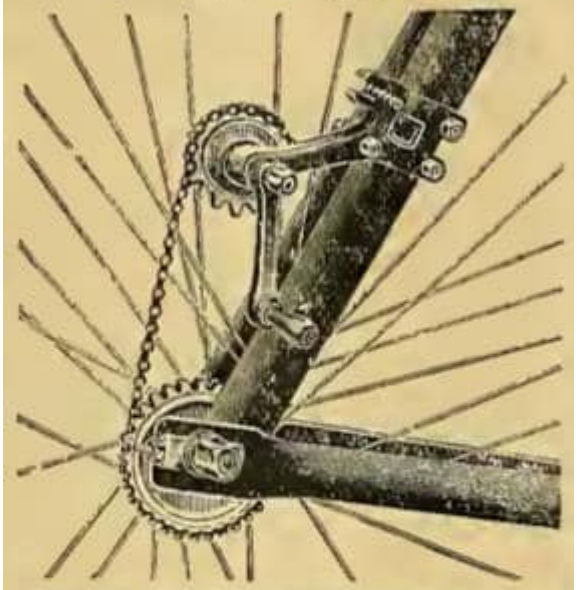
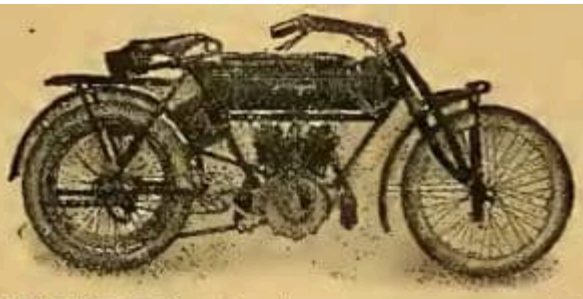
'TEE BEE'
HAND STARTING DEVICE.
Price 20/-. By post 20/4.



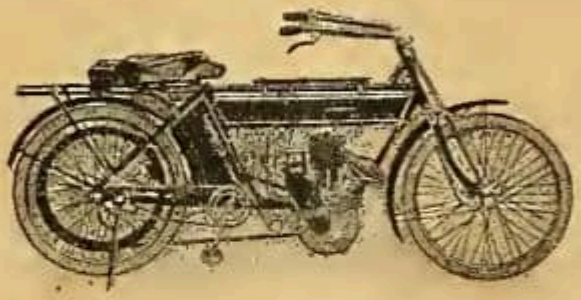
WILL START ANY ENGINE, WITH EASE.
Write for Booklet.
'TEE BEE' SPECIALITIES can be had through cycle and motor agents, or direct.
TEMPLETON BROS.,
535, Sauchiehall St., GLASGOW.



1908 MINERVAS, 7/8, twins	45 0
4½ h.p., twins	39 0
3½ h.p., single	32 0
2¾ h.p.	29 0

You can get them at Wauchope's, 9, Shoe Lane Fleet Street, London, E.C.

Exchanges arranged.



1908 QUADRANT, M.O.V., 84 x 88	47 10
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You can get them at Wauchope's, 9, Shoe Lane, Fleet Street, London, E.C.

1908 F.N., four cylinder	50 0
1908 F.N., lightweight	35 0

You can get them at Wauchope's, 9, Shoe Lane, Fleet Street, London.

All leading makes supplied.

200 MOTOR CYCLES TO SELECT FROM

WAUCHOPE'S

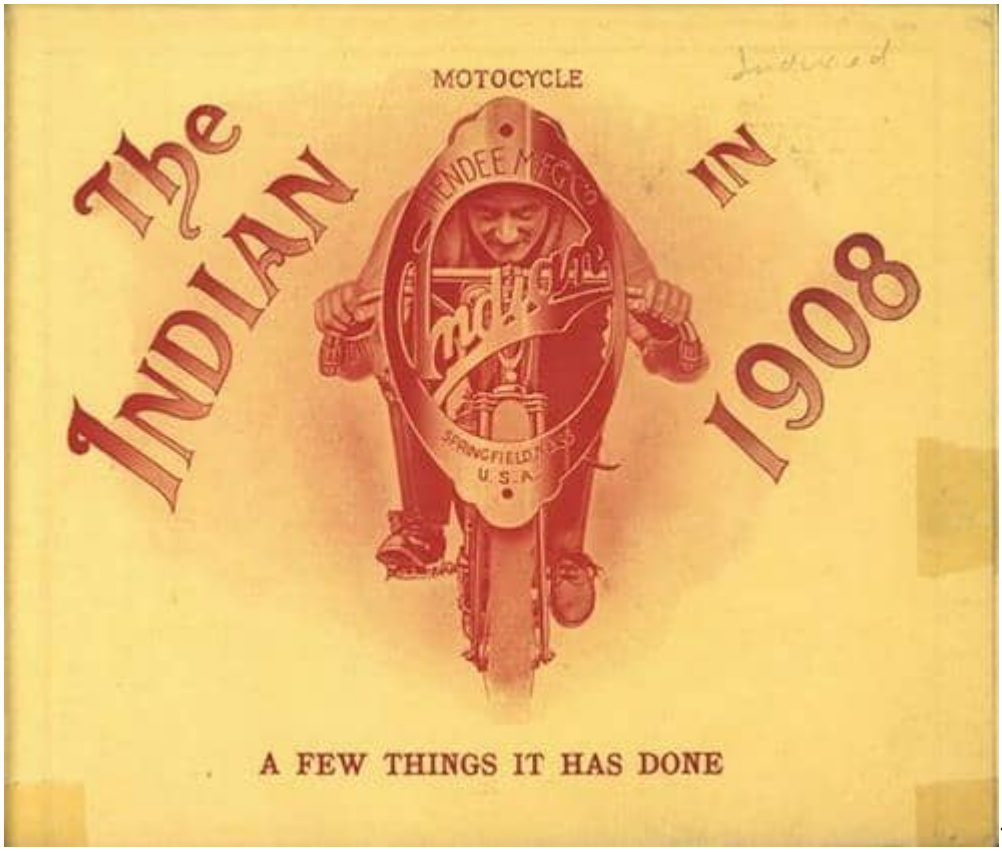
THE WORLD'S LARGEST DEALER

TELEGRAMS OPIFICER, LONDON.

TELEPHONE NO. 5777 HOLBORN.

ONLY ADDRESS

9 SHOE LANE, FLEET STREET, LONDON, E.C.



The US not only produced some of the most advanced motor cycles on the planet, its magazines advertised them in colour!

ALCYON

LE PLUS GRAND SUCCÈS DE L'ANNÉE

LA BICYCLETTE

rétro-directe

ALCYON

UNE SEULE CHAINE

La Machine idéale

pour régions montagneuses

LA BICYCLETTE A PÉTROLE

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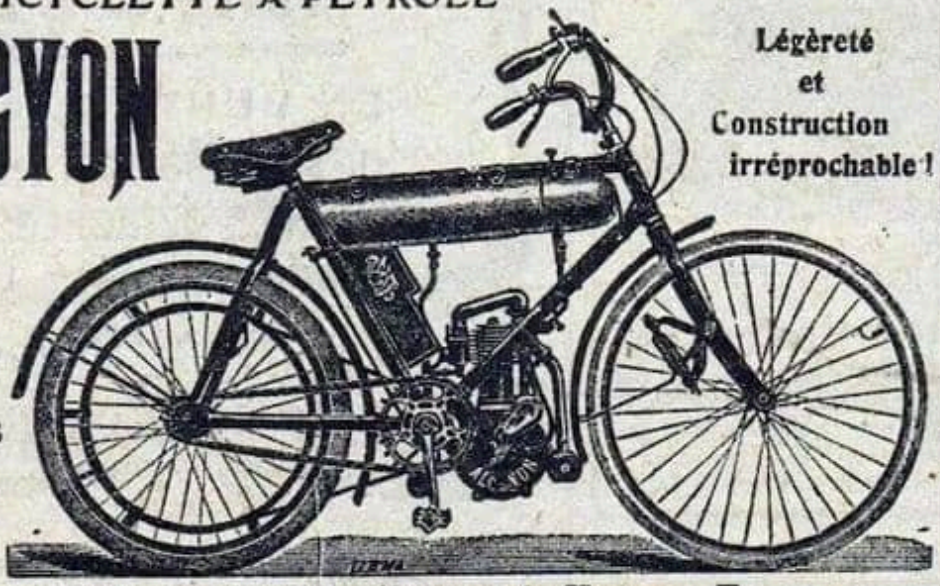
Légèreté et Construction irréprochable !



Poids 32 Kilos

La machine qui fait actuellement le Tour de France 6.000 kilomètres avec GRAPPERON, en plein hiver, par des routes abîmées, sans aucunes pannes.

USINE et BUREAUX : 4 et 6, Boulevard Bourdon. — Neuilly-sur-Seine

Après ses succès dans la Course de la Turbie la

MOTORETTE TERROT

a été classée

DEUX FOIS PREMIÈRE

dans le Concours de Côte de Montjeu (Autun) où le petit moteur TERROT-ZÉDEL a grimpé la terrible côte de 14 o/o à 40 km. à l'heure, la chaîne enlevée.

Le Prix du T. C. F. pour la meilleure bicyclette à moteur pour le tourisme a de nouveau été décerné à la

MOTORETTE TERROT

la meilleure

comme vitesse, comme souplesse, comme confort.

MAGASINS DE DÉTAIL :

30, Avenue de la Grande-Armée, PARIS
260, rue Judaïque, BORDEAUX - 12, rue Gioffredo, NICE
1, boulevard d'Alsace, CANNES
172, aven. de Saxe, LYON - 2, boul. Carnot, TOULOUSE
TOULON, 10, Place d'Armes - 3, quai Penthièvre, NANTES
8 et 10, rue de l'Observance, MONTPELLIER

LA MOTOSACOCHE

est un dispositif indépendant, ayant la forme d'une **Sacoche de cadre**, qui, sous le minimum possible de poids et d'encombrement, réunit tous les organes d'un impeccable mécanisme moteur ; placée dans le cadre d'une bicyclette, celle-ci devient la

REINE DES BICYCLETTES A MOTEUR

La Motosacoche, construite par la **Société H. et A. Dufaux & Cie, à Genève**, moteur de 1 cheval 1/4, a atteint le maximum au point de vue régularité, vitesse moyenne, puissance et économie.

Consommation : **2 litres aux 100 kilomètres.**
Grimpe toutes les **côtes de 8 à 10 0/0.**
Variation d'allures instantanée de 6 à 40 à l'heure.
Vitesse moyenne : **30 à l'heure.**

La Motosacoche figure, dans les épreuves internationales, toujours au premier rang, que ce soit : course de vitesse, course de côte, concours d'endurance, de régularité ou de consommation.

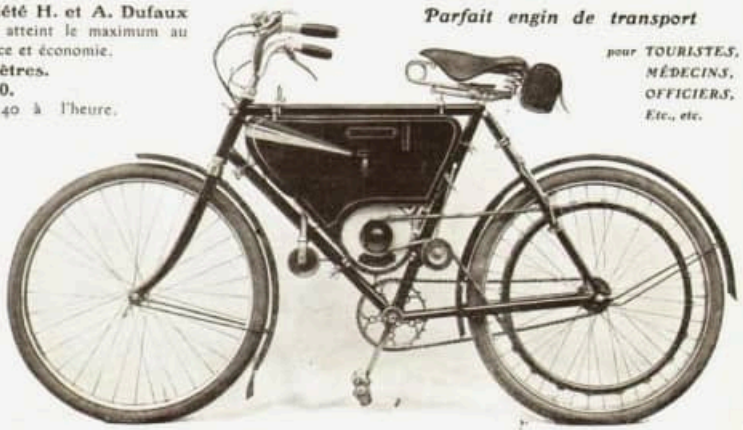
ENVOI DU CATALOGUE FRANCO

ESSAIS & VENTE A TEMPÉRAMENT
TOUS RENSEIGNEMENTS

16, Rue Duret, PARIS

Parfait engin de transport

pour TOURISTES, MÉDECINS, OFFICIERS, Etc., etc.



La Motosacoche

Groupe moteur amovible,
ayant la forme d'une SACOCHE de cadre, permettant de transformer une bicyclette routière en une BICYCLETTE A MOTEUR

PARFAIT ENGIN DE TRANSPORT POUR

TOURISTES
MÉDECINS
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etc.

Modèle à cadre ouvert spécial pour DAMES et pour ECCLÉSIASTIQUES

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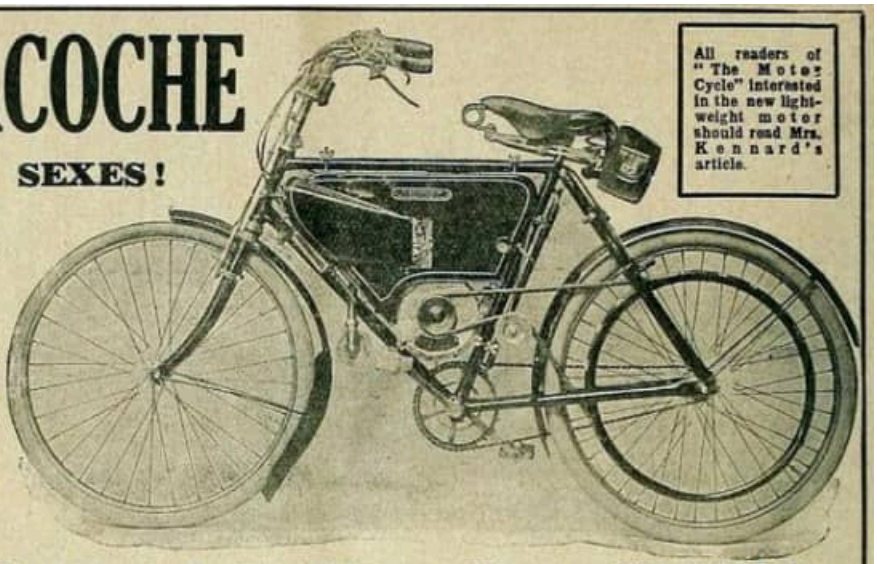
à PARIS
16, rue Duret, 16

Catalogue franco.

MOTOSACOCHE

FOR BOTH SEXES!



All readers of "The Motor Cycle" interested in the new lightweight motor should read Mrs. Kennard's article.

Mrs. Edward Kennard terms it
THE IDEAL MOUNT.
WHY?
Because it combines Lightness, Simplicity, Power, and Reliability with Ease, Elegance, Handiness, Speed, and Economy.

WHY NOT HAVE A TRIAL RUN?

Extract from article by Mrs. Edward Kennard, "The Motor Cycle," Jan. 1st, 1908.

A REAL LIGHTWEIGHT BICYCLE.—A real bicycle, with a small 1¾ h.p. engine attached, framed round with tubes in the shape of an ordinary motor bicycle. My eye at once perceived the difference. The Motosacoche weighed seventy-five pounds. Its lightness, handiness, and simplicity were apparent to the veriest tyro. How nice for traffic and tight corners! The machine was so light one could pedal it precisely like an ordinary bicycle. The control seemed the acme of simplicity. There were no levers in the ordinary sense of the word. An exhaust lever on the left handle-bar advanced the ignition to the full when dropped, and in conjunction with it was a small handle which actuated the throttle. The Motosacoche would crawl along at three miles an hour or speed away at thirty. The complete lady's Motosacoche at the Stanley Show was admired by all. If it fulfils all its claims, I predict for it a great and immediate success among feminine votaries of the sport. It is what women want. A mount they can manipulate without male assistance. . . . I feel sure the Motosacoche will prove a boon and a blessing.

1908 MODELS NOW ON VIEW.

Single and Double-cylinders. Magneto or Accumulator Ignition.

1¾ and 2¾ h.p.

SEND TO-DAY FOR LIST AND CATALOGUE.

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H. & A. DUFAUX (England), Ltd.,

65, Holborn Viaduct, London, E.C.
(Opposite Spiers and Ponds).
Telephone No.: 5439 Holborn.

ZLATÁ MEDAILE JUBIL.
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STŘÍBRNÁ MEDAILE
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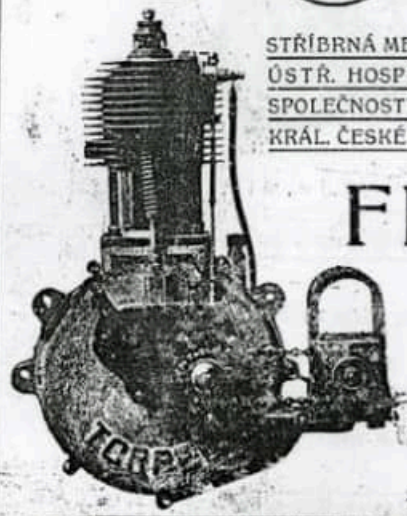
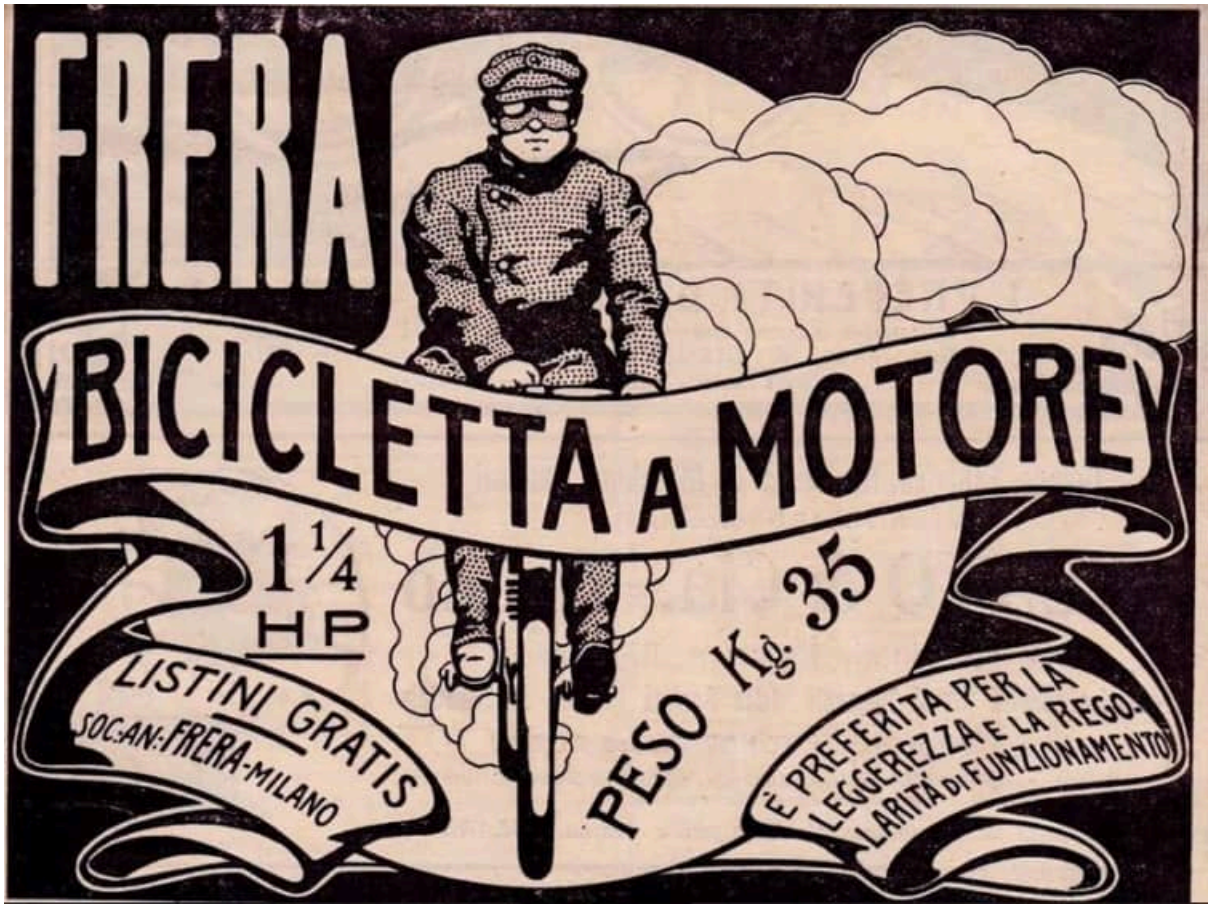
SPOLEČNOSTI PRO
KRÁL. ČESKÉ A. T. D.



FR. TROJAN & A. NAGL,

TOVÁRNA VELOCIPEDŮ A MOTOCYKLŮ
„TORPEDO" KOLÍN N. L.



Côte de Gaillon

Dans les deux catégories, la Victoire est revenue à la **Motocyclette**

PEUGEOT

GIUPPONE ayant renouvelé ses exploits légendaires en côte.

Les Fils de PEUGEOT Frères

VALENTIGNEY (Doubs). — Succursale à PARIS, 38 bis, avenue de la Grande-Armée.

Comme suite aux Victoires récentes des **MOTOCYCLETTES**

PEUGEOT

au **Meeting de Gaillon**

GIUPPONE

a encore, hier, à **Château-Thierry**, triomphé sans lutte dans les **deux catégories Motocyclettes**.

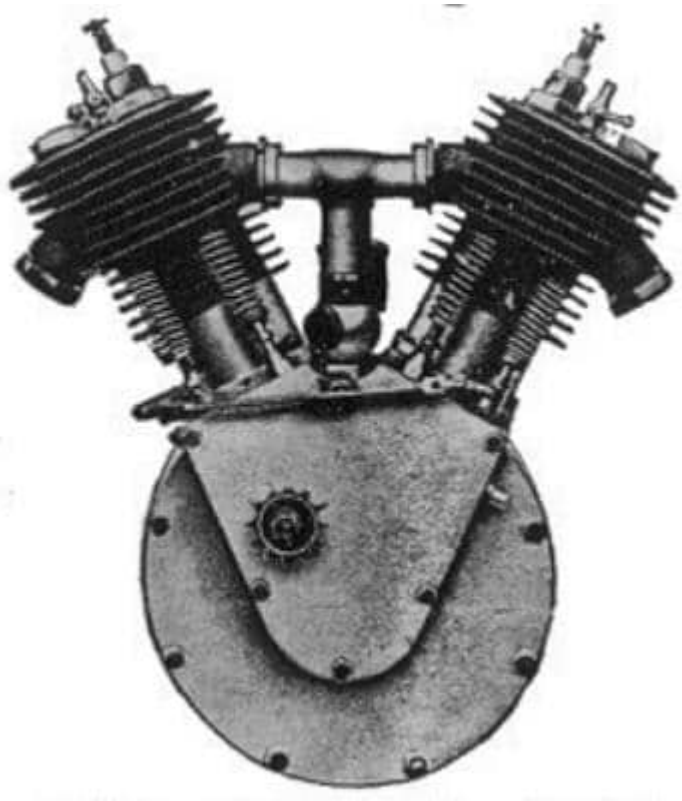
Un seul monstre sur les **50** concurrents engagés a monté plus vite que la petite machine de **GIUPPONE**, laquelle a escaladé la côte en **50 secondes 2/5**, laissant loin derrière des 50 et 60 chevaux à 4 et 6 cylindres.

Les Fils de PEUGEOT Frères

VALENTIGNEY (Doubs). — Succursale à PARIS, 38 bis, avenue de la Grande-Armée.

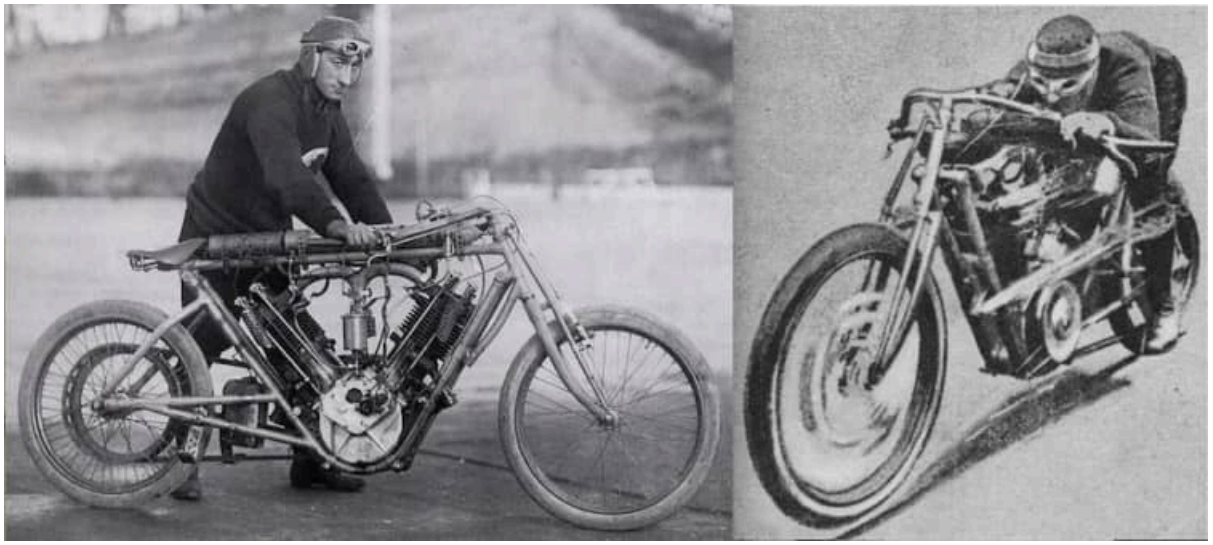
1909

A WEARWELLPOWEREDBYASTEVENSENGINEcompleted a non-stop 24-hour run which enhanced the Stevens'reputation; but Wearwell went to the wall because its company secretary had gambled away its funds at his local boozer. Clyno had begun to use Stevens engines which boosted the Stevens' income. All of which inspired George,Harry, Jack,and Joe junior to build complete motorcycles. Theyformed a new company for the purpose and used the initials of oldest brother Jackas the name of their motor cycle. Jackwas christened Albert John Stevens, the tank bore the name AJS.



Stevens engines, including this 6hp twin, had won acclaim for Wolf and Clyno; now they would do the same for AJS.

WILL COOKECOVEREDa □ðyingkilometrein 29.465sec to set the □ðrstoïicial world motor cycle speed record of 75.92mph on a 994cc JAP-enginedNLG.[The French crack Henri Cissac had recorded a 25.6sec/88mph kilometre run in 1905 but the ACU'srecord classes had a 1,000cc limit and Cissac's 16hp projectile was much biggerthan that, although it met the contemporary French rule—under 50kgwith no cc limit—Ed.] 'Then'Cookie' went back to Brooklands with a fearsome 2.7-litre, 20hp JAPV-twin NLGto clock up an unoïicial 90mph (there was a problem with the timing equipment). TheGreen'Un reported: "…thisfearsome looking machine, mostly engine which takes up all the room where a self-respecting machine would keep its tank, but this monster twin JAPisfed from a small torpedo tank on the top tube; WECook, its intrepid rider, told us that he could complete three laps at Brooklands without running dry…Cooksaid that with fully retarded ignition the spark occurs dead on top of the stroke, and with a view to facilitate timing and tuning up of the cylinders, he has drilled two tiny holes in the



He was let down by the timing lights, but Cookie's 2.7-litre NLG was clearly the fastest bike yet to run at Brooklands. (Right)"EH Thomas' impression of WE Cook hurtling round Brooklands on his huge 20hp NLG-JAP."

cylinder heads so that a spoke can be inserted when the small plugs are unscrewed…He says the 16-20hp does not keep the track well; in fact he is hardly ever in the saddle when the speed gets up above 70 miles per hour…WE Cook is a cheerful soul, and keeps himself □ðtfor his record attempts by riding a racing pedal-tricycle at weekends…he is a clever amateur artist…he is modest and only with diīiculty could we persuade him to give us any account of his doings, but he let fall the pleasing information that should any customers of the North London Garage fail to pay their bills it would be their fate to come out for a spin with him in a side-car hitched up to the 16-20hp. This awful prospect will doubtless extract the long delayed cheque. His head is protected by a special leather healmet strongly padded and coming well down over his ears so that in case of an accident this device should save his head to a certain extent. Other racing motor cyclists prefer the pneumatic helmet strengthened with strips of steel, but it is more than likely, in our opinion at any rate, that if there ever is an accident it will not make much diīerence whether a man wears a helmet or not." Cookie had taken a spill the previous year when the back wheel fell oī. "Twice, he says, he tried to get up, but found he was still rolling over and over until at last he came to a standstill, badly shaken and bruised, but still alive…On the main line, nearby, the fastest expresses seem to crawl when Cook gets low on his 16-20hp, for have we not seen him crouching low and hurtling though the air at 90 an hour? Like Curtiss in the USA, Cookie was also fascinated by □ðight–he was reported to be "building a □ðapping machine for a customer…according to the sanguine inventor, when he sets the planes at 20º and gets the 6hp twin engine to work the □ðapping apparatus, away he should □ðy".

Harley Davidson's launched its □ðrstV-twin.Notethe castle forks (our colonial chums refer to them as 'springers') that would be a Harley feature into the 21st century.

THEBRITISHMOTORCYCLERACINGCLUBwasformed; it's still very much in business and known as 'Bemsee'.

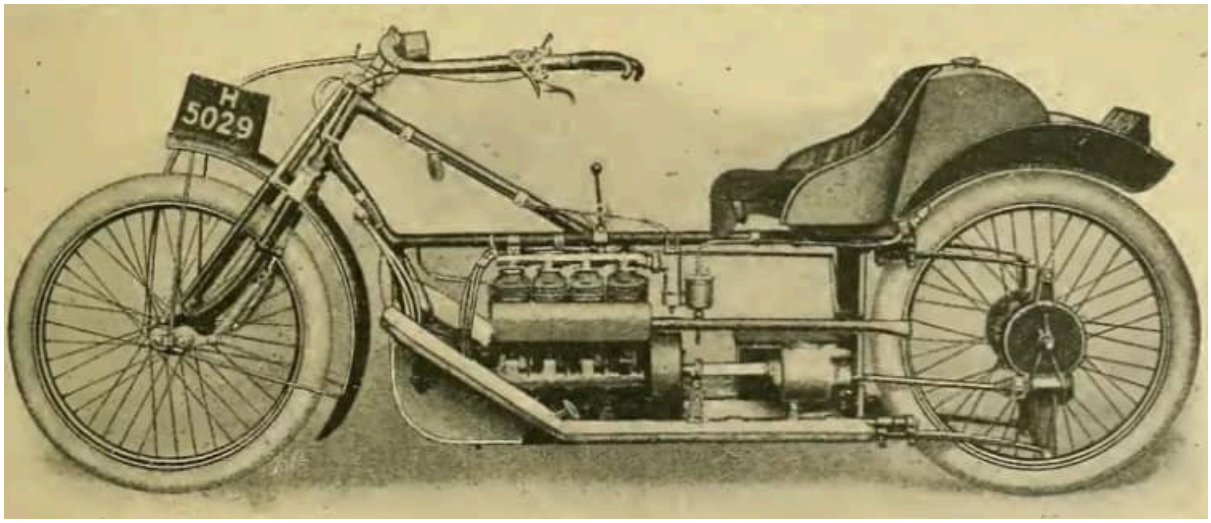
A 500cc TRUMP-JAPdid48 miles in an hour.

THEBRITISHCYCLEAND MOTORCYCLEManufacturers and Traders Union was established to run an annual motorcycle show and look after "mutual interests". Its □ðrstpresidentwas Sunbeam founder Sir Charles Marston.

"THEREARE88DIFFERENTpatternsingle-cylinder motor bicycles on the British market; 46 of these have engines with mechanically operated valves, and 61 have magneto ignition as standard. Only two makers use chain transmission, while nine still □ðtrigidforks.Thenumber of multi-cylinder machines is 72. Thelowest-priced machine costs £19 19s, while the most expensive costs £65.

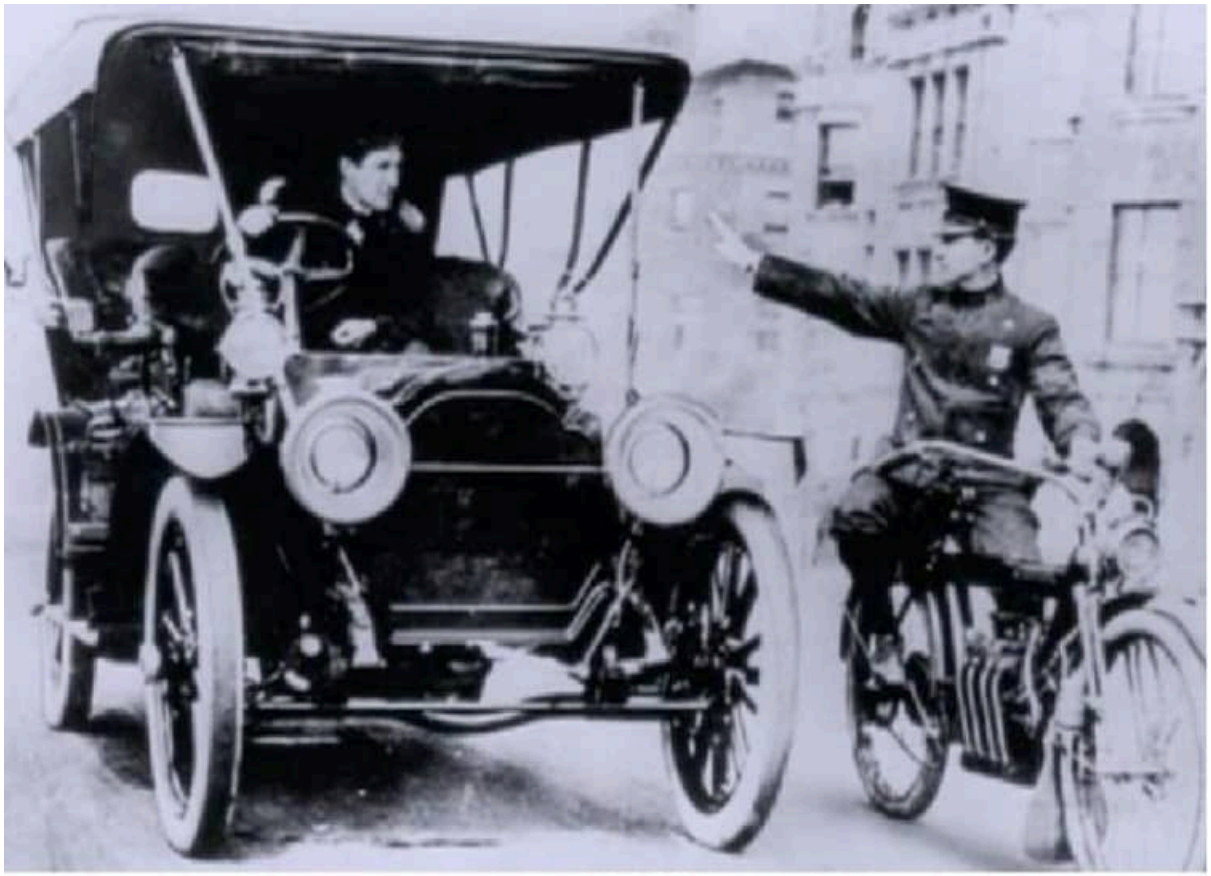
"'ONE ORTWOMODERNcrankcases which I have recently inspected lead me to suggest that it might be a good thing if all crankcases were cast as nearly as possible dead smooth externally. Themotor cycle suīers from the opprobrious epithet of 'smelly' equally with its big sisters, and a good deal of the smell arises from hot dirt mixed with oil on the exterior of the crankcase. A brand new machine, with an absolutely clean crankcase, seldom leaves any smell behind it.'—A Contributor."

THEUK GOTA NEWFOURcourtesy of "Wilkinson Sword Co, Pall Mall, W, that old-established □ðrmwhichhasmade its now world-wide reputation in the manufacture of swords and bayonets for the British Army". Thewater-cooled Wilkinson-TAC(for 'touring auto-cycle'), like the Pierce four launched the previous year in the USA,was aimed at the luxury market. It was described as "a luxurious two-wheeled mount built on car lines" . The7hp/680cc enginefollowed car practice by having not one, not two but three gears operated by a lever in a gate setting a trend that would become ubiquitous



TheWilkinson TACset new standards of comfort for the discerning gentleman motor cyclist.

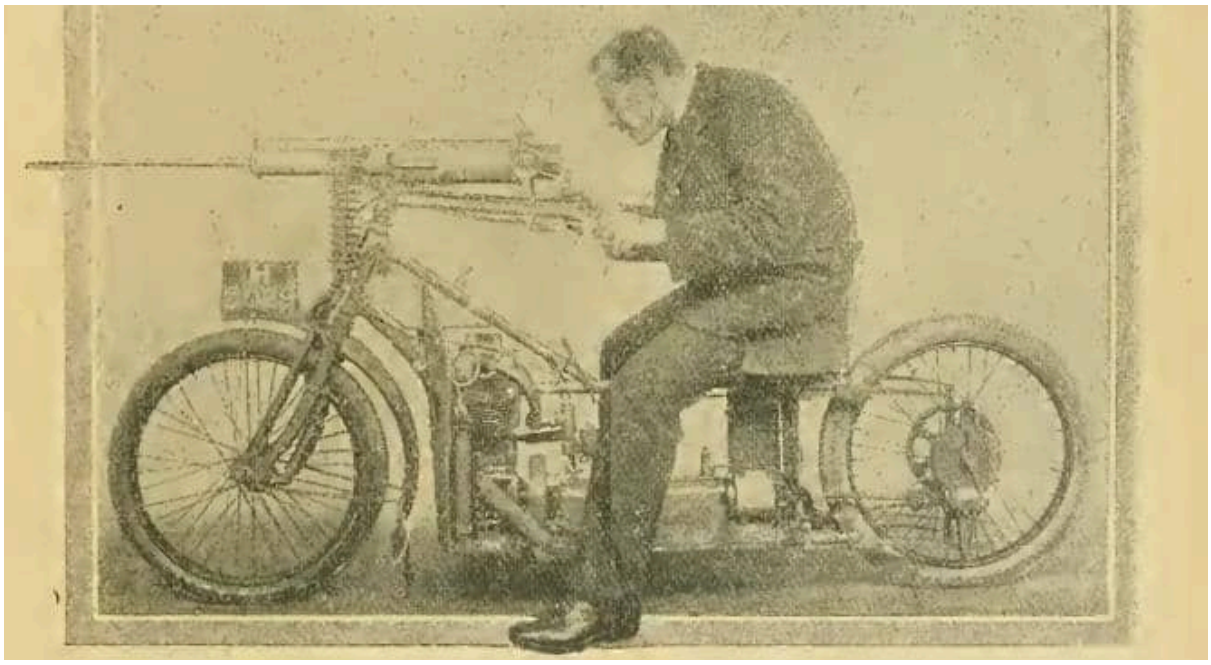
until foot gearchangetook over. Therewere 'inspection windows' in the crank to check crankcase oil levels; leaf springs took care of front and rear suspension; □ðnaldrivewasby shaft; starting was by a lever. Fuel consumption was claimed to exceed 60mpg. Theforks were made by Chater-Lea, which also began to make



The Pierce made a useful cop's bike.

complete motor cycles, as did New Hudson, Blackburn, Regal, Royal Ruby and Premier. Like the Pierce, the Wilkinson was expensiveto make; both fours ceased production within four years. While developing its luxury four-pot TACWilkinson built a single-cylinder version. The □ðrmwas best known for producing edged weapons but had developed a lightweight machine gun which it

□ðttedtotheprototype. It would not be the last motorcycle to be built for combat. There'sa contemporary roadtest of the Wilkinson TAC in the 1909 Features pages.



Wilkinson also built a motorcycle □ðttedwithaQD machine gun.

MOTORCYCLINGREAPPEARED;INTIMEagreenmasthead would lead enthusiasts to dub it the Green'Un. Surveyingthe size of its potential market the Green'Un estimated there were 70,000 motorcycles on British roads.

"READERSWILLREMEMBERthatthe Auto Cycle Union recently announced a series of Esperanto lessons. Esperanto is being taken up by motor cyclists as an assistance when touring abroad and in the hope that some day this languagewill become general. Thefollowing are a few of the principal words: Brakeband (bremsorubando). Carburetter (karburatoro). Contact breaker (kontakt-rompilo). Exhaust (gaafor□ðuo).Exhaustvalve (for□ðuovalvo).Goggles (okulvitroj). Horse-power (cevalpovo)."

MOTOSACOCHEWASTEMPTINGBRITISHriderswith a "gentleman's motorcycle, with spring frame and stand" weighingjust 82lb.

"A FOUR-CYLINDERFNmotorbicycle was seen towing a superior type of dog kennel on rubber-tyred wheels in St Albans recently. This combination has been has been used most successfully as a dog's ambulance in St Albans where valuable dogs are kept by certain breeders."

WITHTHEBLUE'UN RUNNINGA SERIESofstories from doctors promoting the physical and logistical bene□ðtsofmotor cycling, Dr Innes Dick of Yorkshire sent in a sel□ðeindicatingboth the hardiness of his locally produced P&Mand his own determination to serve his patients in all weathers.

Dr Dick looks like he was found frozen to his bike (but at least he made house calls).

WELCOME TO THE FIRST TEABAG, invented by Thomas Sullivan – so much more civilised than instant coīee (qv), and an essential workshop supply.

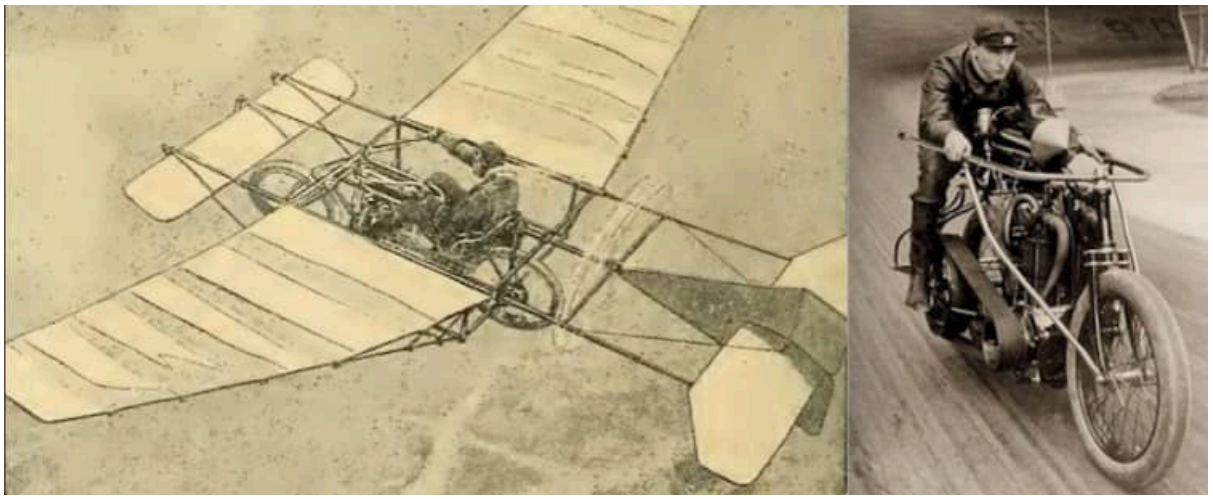
BRITAIN IMPORTED £48,327 WORTH of motorcycles and components (up from £45,762 in 1904). But by way of comparison exports were worth £105,554 (up from £38,431).

IN THE USA LEE CHADWICK developed a supercharger for racing cars.

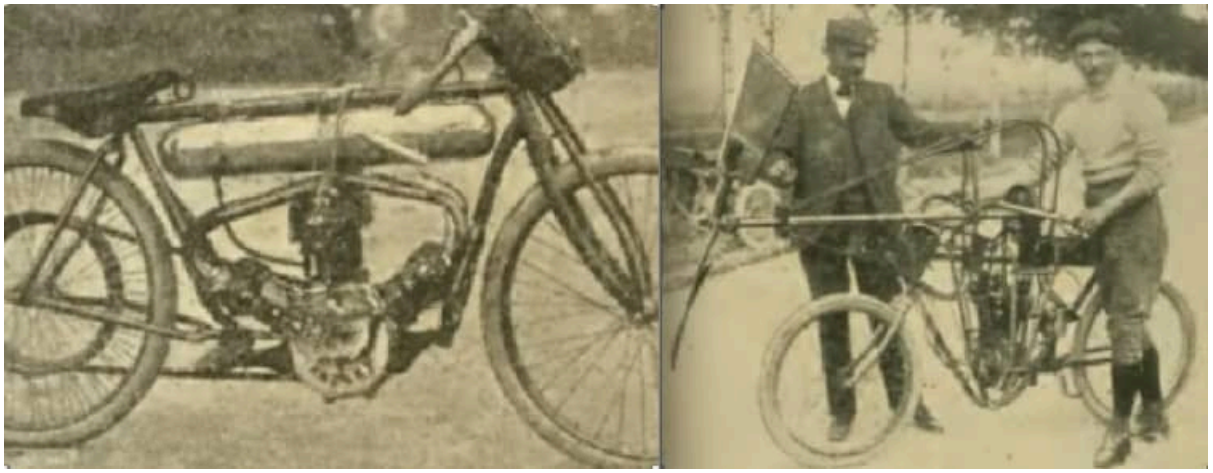
A BINKS CARBURETTOR PIONEERED the use of pilot jets; within a couple of years the company was producing two-jet carbs for motorcycles.

"HA COLLIER CREATED the □ðrst 24 hours' motor cycle record at the Canning Town track on Wednesday and Thursday last. In the time named he covered 775 miles 1,340 yards The longest motor cycle track record previous to Collier's was the 12 hours' record made by Azani". Six years before Alessandro Anzani had covered 434 miles 425 yards at the Parc des Princes Track in Paris with a remarkable V3. And Anzani was still very much in business. Louis Bleriot had just used an Anzani engine for his historic cross-Channel □ðight and his monoplanes propellor was developed on an experimental " aero motocyclette' that Anzani had built in 1906. (The propellor, on the front of the bike sucked it along a Parisienne boulevard at 50mph). A 1909 futurist waxed lyrical: "Will it be possible to attach a □ðying device to a motor cycle and use road wheels or planes and propeller at will? Time alone can show, but the idea is certainly not wildly impossible, as the Channel □ðight itself was proved to be an impossibility not long since." Patriotic Brits smarting at the aeronautical lead snatched by the French were reassured: "It is satisfactory to note that at least one British invention had to be requisitioned to enable

Monsieur Bleriot to accomplish his feat. The Bowden wire mechanism, in fact, played a vital part in the control of 'Bleriot XI', its □ðexibility and lightness rendering it peculiarly suitable."



Anzani's role in Bleriot's □ðight led to some fanciful predictions of hybrids. (Right) Anzani engines were also much in demand in the cycle pacing business where the need for speed entailed engines of monstrous dimensions.



Anzani's record breaking V3 did its bit for aviation too. Anzani built the bike that tested the prop that pulled Bleriot over the Channel.

"WE NOTICE THAT THE ORGANISERS [of long-distance trials] have discarded the appearance awards as far as concerns the riders. It is questionable whether this is wise, as it must be patent to anyone that a rider who can keep a smartly attired appearance is the one who has the least trouble with his machine, presuming he is clean and smart at the start. Trouble with belts, tyres, engines, etc, usually means a dirty appearance at the end of a day's ride unless one has time to stop for the necessary ablutions."

FA MCNABB SET BRITISH 50- AND 100-mile records on a 484cc sv JAP, covering 107 miles, 1,385 yards in two hours at 96mpg. His 484cc JAP weighed 122lb and averaged 96mpg. [You'll ïnd more details in a letter he wrote to The Motor Cycle in 1945—Ed.]

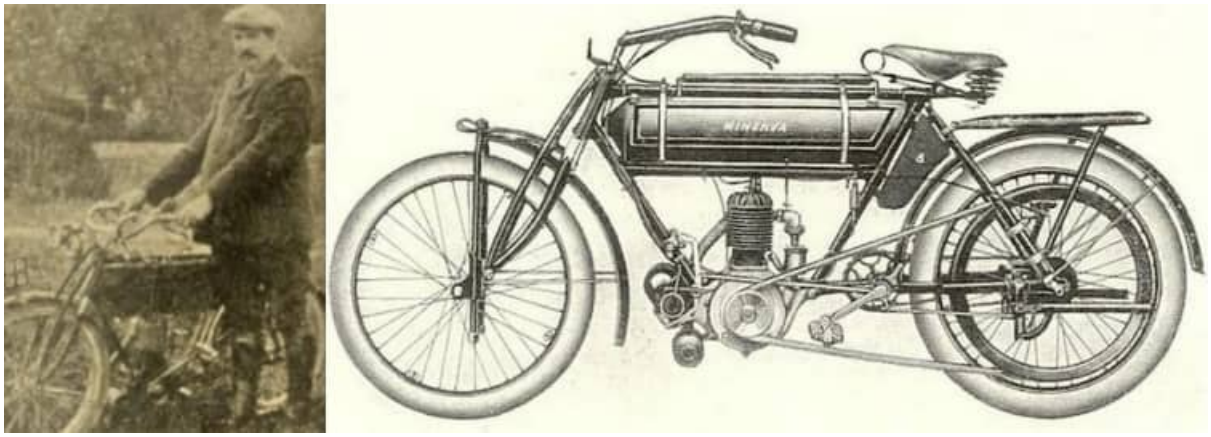
BROOKLANDS HOSTED ITS FIRST WEEKDAY meeting (on a Wednesday) with a prize of £25 for a 1,000cc handicap race over 8½ miles. There were 33 starters; Harry Collier (8hp Matchless) took the purse, well ahead of HG Partridge (6hp NSU) and Charlie Collier (3½hp Matchless). Harry's average speed of 69.75mph was a track record. The Blue' Un reported: "Although French,

German, Austrian, Belgian, and American motor cycles were represented in last Wednesday's race at Brooklands, an all-British machine scored an easy win." Following the race WE Cook was doing over 60mph on a practice lap when he came oī, but escaped with minor injuries as he was wearing one of the latest leather helmets.

The 30 competitors in the City Motor Cycle Handicap at Brooklands □ðrst Wednesday meeting. Yes, the spectators do have their backs to the bikes; they're watching the □ðnish of the □ðrst race. Right: Harry Collier set a Brooklands record at just under 70mph.

"NO PARTICULAR FOR Mofignition can be said to have scored in the four motor cycle events at the Brooklands Easter meeting, for the winner of the Spring Handicap used dry batteries; the winners of the Easter and Surrey Plates, magnetos; and the victor in the By□ðeet Plate, accumulators."

THE MOTOR CYCLE SET OUT to □ðnd the heaviest rider in Britain. Step forward WF Cross of Sunderland, a strapping 6ft 1in and 19st 12lb. He had won medals in hillclimbs and speed trials on his 3½hp single-speed Minerva and regularly covered 150 miles in a day. A pundit opined: "That the perfect motor cycle change speed gear has not yet been devised is quite as apparent as the demand for a gear, particularly among heavyweight riders." History does not record Mr Cross's view. In any case it was the end of the line for Belgian pioneer Minerva.

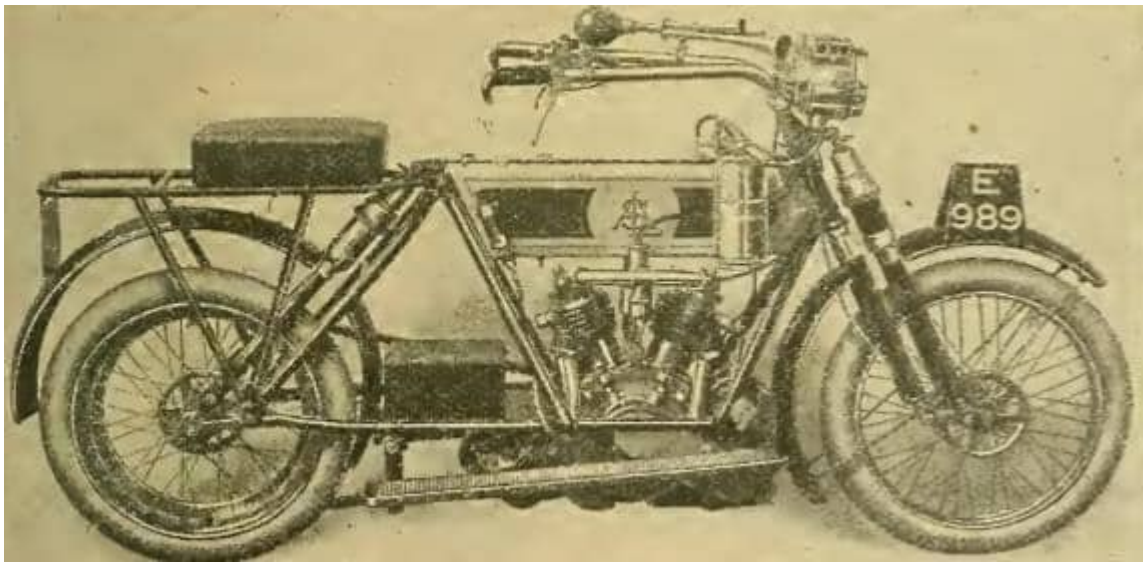


WF Cross, at just under 20 stone, claimed to be Britain's heaviest motor cyclist. Fortunately the Minerva was a sturdy motor cycle.

IN JAPAN MICHIO SUZUKI opened a factory producing looms for the silk industry; in Italy Guiseppe Gilera opened a factory producing motorcycles.

MEMBERSHIP OF THE Motor Cycling Club reached 315.

ASL CAME UP WITH AIR-SPRUNG FORKS Sandan air-sprung cantilever frame; the air shocks could be pumped up to suit the rider's weight. Two examples were ridden in the London-Edinburgh run, and were said to be "much admired". FG Smith, who rode one of them, picked up the MCC Challenge Cup for sticking closest to the time schedule.



Riders of the air-sprung ASL were said to be "insulated from road shocks".

BELGIAN ACE OLIES LAGERS successfully defended his title at the Brussels Velodrome for the sixth year running – after 10km he □ðnished just 50 metres ahead of rising star Andre.

NEW YORK'S NEWLY ESTABLISHED corps of motorcycle cops, with the approval of their commissioner, held a race meeting. The Motor Cycle commented: "In England it is hard to imagine our constables and sergeants taking part in track races. Were there motor cycle policemen in this country, there would undoubtedly be less persecution, the real road hog would be wiped out, and the careful drivers would be free from molestation."

IVAN B HART-DAVIES RODE his 3½hp Triumph from John-o'-Groat's to Land's End in 33hr 22min, knocking 7hr 16min oī the previous End-to-End record. Soon after Vivian Olsson and Charles Talbert claimed the □ðrst End-to-End 'passenger motor cycle' record of 65hr 14min on a 7hp Vindec Special (VS) with a Mills-Fulford □ðxed wheel sidecar.

Ivan Hart-Davies relaxes with the mates who helped him make it to Land's End.

Meanwhile, on t'other side of the Irish Sea, CE Murphy (3½hp Triumph) completed an Irish End-to-End in 13hr 6min, breaking his own 1907 record by 2hr 42min. Within a month of Olsson's record it was reduced to 59hr 7min by Arthur and Horace Bentley on a 5hp two-speed Rex and Millford sidecar. Just six weeks after the Bentley brothers took the End-to-End record from Vivian Olsson it was taken again. Martin Geiger and William Lamm made the run on a 7hp Vindec Special and Mill-Fulford sidecar in 51hr 45min. You'll ïnd the full story of the long road from John-o'-Groats to Lands End, as well as six-day and coastal treks, replete with tales of derring-do and sheer British pluck in the 1911 Features pages.

THE MAGISTRATES AT SYDENHAM □ðned a motorcyclist £3 (equivalent to about £300 today) for doing 5mph over the limit down Shooters Hill. On the same day a man who admitted trying to cut his wife's throat and to trying to strangle and burn her was released after he promised not to do it again.

A NEW PRODUCT WAS DESCRIBED as "a twisting handle grip which has been designed to operate a wire controlling carburettor or magneto. Around the outside of the bar is coiled a wire as shown which is secured by soldering. The slide to which the controlling wire is attached is caused to move backwards or forwards by rotating the handle." Yes, it's a twistgrip!

A twistgrip, in 1909, a long time before this technology became ubiquitous. Clever or what?

IXION WARNED: "MODERN ENGINES are naturally rather thirsty, and so the supply does not go as far as it used to. But I cannot help thinking that any genuine roadster should carry suīicient petrol to cover at least 120 miles of □ðat road at 18mph. Makers might meet the objection by listing a larger tank as an extra."

INLETAND EXHAUSTVALVESweregetting bigger in the quest for power. Riders were advised to carry spares as the largerheads were more inclined to snap oī, and to removetheir valves and check them every 1,000 miles.

THEMCC OF NEW SOUTHWALESheld a hillclimb at Baden Hill, Coogee. Therewere a dozen competitors; top three places went to 3½hp LMC, a 2½hp JAP,and a 5hp Peugeot.

America was home of the one-make club. Theseenthusiasts from Danvers Massachusetts rode Reading Standards.

DURINGA VISITTOWALESby the Motor Union and the Ligue Internationale des Associations Touristes speed trials were held on Pendine Sands. Thebikes were standard roadsters from 33-601cc; winner was WEJames (Oxford) ahead of ETStrick (NSU).

THEREWERE74STARTERSinthe ACU Six-Days' Trial including factory teams from Douglas, P&M, Bat, Rex, Humber, Triumph, Premier and Bradbury. Theyleft London (Uxbridge to be exact) on Day 1, riding to Shrewsburyvia Oxford. Day 2: circular tour via

Competitors line up for the start of the ACU Six-DayTrial at Uxbridge.

Wenlock, Stourbridge, Eveshamand Ludlow. Day 3: circular tour via Welshpool, Llanfair, Mawddy (for an observed hillclimb) Aberystwyth and Newton. Day 4: circular tour via Llangollen, Balo, Festiniog, Llandudno and Chester. Day 5: circular tour via Market Drayton, Maccles□ðeld, Cat and Fiddle, Derby and Crudington. Day 6: Shrewsburyto Uxbridge via Much Wenlock, Kidderminster, Worcester, Gloucester, Birdlip Hill, Maidenhead and Slough. Here are some highlights: "Seen from the summit [of DashwoodHill] a huge batch of motor cyclists climbing in close order presented an interesting spectacle…inplaces steam rollers were at work eīecting

tardy repairs and considerably hampering the riders…At Tetsworth, RW Walker (3½hp Premier) had a short circuit in his magneto, and in Oxford met further misfortune, being thrown from his machine by a

Competitors fettling their machines in the hotel yard at Uxbridge. Right: The peak of Dinas Mawddwy in the rain, with a Motosacoche tiddler and a Humber in the foreground.

dog on Magdalen Bridge…At Worcester Phillips's 3½hp Scott, which had been the centre of attraction since the start, suīered a series of punctures from a nail [he was forced to retire]…Several of the riders complained of nails being strewn on the road near Shrewsbury. Those picked up were new, and consequently people are unwillingly inclined to be suspicious…The lunch and attendance at the Swan Hotel were all that could be desired, but a charge of 3d garage for each machine was met with by righteous indignation on the part of the competitors, and their resentment at one time nearly assumed serious proportions. It then began to rain, and to save further unpleasantness the men paid and tried to look pleasant…Edmond (3½hp Humber) was among those who had belt trouble; while the Roc and sidecar (carrying the only lady in the trial) has experienced a broken frame, which probably means its retirement…A strong wind blowing down the course made matters as bad as they could be, and, added to these adverse conditions, the tops of the mountains became covered in clouds, and rain soon began to fall heavily…Some dozen of the remainder failed to make the ascent, and the

FC Mustard (3½hp Triumph) climbing the notorious Dinas Mawddwy in heavy rain, against a strong headwind. Right: Passing through Ludlow, BH Davies (5hp Advance) in the foreground. Ixion, as always, was in the thick of things.

Rex and sidecar shed its passenger…To my astonishment, I met BH Davies with his tank empty walking towards Dinas Mawddwy, the reason being that he had been wrongly directed by a policeman…For 52 miles the route lay along Telford's magni□ðcent road, probably the best graded in the British Isles…Gradually the road deteriorated into a mere mountain track, the milestones only indicating that it led to anywhere in articular…At Cerrig-y-Druidion I met

Andrews (2hp Moto-Reve) in tow of the GWR motor omnibus. He has stripped some teeth oī the magneto driving wheels, and was out of the competition, so I took charge of him and towed him towards headquarters. Near Chirk I came upon Pershke (6hp Puch and sidecar) hopelessly broken down through magneto trouble. With the aid of Andrews's Watawata and a strap I took him also in tow and brought them safely back to Shrewsbury…The 5hp Rex and sidecar driven by Lord was driven 120 miles after an encounter with a ditch. I saw the machine, and marvel at Lord's grit in sticking to his mount. The front forks were twisted all on one side, but Lord quickly straightened them, and, although the front tyre was practically rubbed through, he succeeded in reaching Shrewsbury at a somewhat late hour…All the morning the roads

The P&M team: W Milnes, R Moore and W Pratt (Moore, of course, being the 'Moore' in Phelon & Moore). Right: Richard Moore wasn't the only manufacturer to ride what he made: Tessier and his Bat won Muriel Hind's cup for top twin.

had been magni□ðcent, but from Birdlip on they became very rough and full of holes almost the entire way to Uxbridge. Outside Cirencester I passed Lee-Evans (Indian) in trouble by the roadside, and later on learned that he had suīered a seized piston and retired…Holdroyd, the rider of the Motosacoche, was received with vociferous cheers when he entered the Chequers' yard on Saturday. They were deserved, as the little machine really distinguished itself…The thanks of all those concerned in the trials are due to all those chief constables through whose districts the routes passed. Not a single case of police interference was reported, though several of the areas traversed are reputed to be by no means free of traps. In many cases the police were of valuable assistance…Stanton's retirement was due to ill-luck. By some unaccountable means his lubricating oil tank was □ðlled with what was afterwards discovered to be 'varnish' although it was poured from a Vacuum tin…Altogether there have been 26 retirements, and 48 have come through successfully…The Trial has certainly been the most arduous ever held by the Auto Cycle Union, and probably it will result in the 1910 machines being vastly improved." The survivors picked up 31 ACU gold medals, 16 ACU silver medals and two ACU certi□ðcates. The ACU team prize went to P&M; TH Tessier (7hp Bat-JAP) won Miss M Hind's Cup (best performance by a twin). AJ Wilson's Cup (best performance by a lightweight) went to WW Douglas (2¾hp Douglas twin); MJ Schulte's Cup (best performance by a single) went to FC Mustard (3½hp Triumph).

THE ACU'S COUNTERPART OVER THE POND, the The Federation of American Motorcyclists, staged its eighth annual 'endurance run' as part of a weeklong national conference which also included track racing, a formal dinner, parade, election of oīicers and a day at the beach. The endurance run was described beforehand as "the most notable motorcycle contest ever held in the United States" and afterwards as "the most successful in the history of motorcycling in the United States". The two-day, 362-mile run from Cleveland, Oregon to Indianapolis, Indiana attracted 103 entrants;

Albert Peters (Torpedo) and HJKie□ðer(Kie□ðer)bothwongoldmedals; Peters for 1,000 points, Kie□ðerfor 936.

96 riders on 19 marques started: Curtiss (1), Emblem (4), Excelsior (5), Harley Davidson (7), Indian (21), Kie□ðer(1),Marvel(1), Merkel (7), MM (3), New Era (3), NSU (6), Pierce (3), Racycle (1), Reliance (5), R-S(15), Thor (8), Torpedo (1) and Yale (4). Theywere started in groups of four at one-minute intervals and to ensure compliance with local speed limits, had to average15mph on the □ðrstsection,riding to 17mph and then to 19mph for the □ðnaldash.Aswith ACUtrials, there were test hills to contend with. An observer reported: "The journey was characterized by very few accidents. About one dozen riders went into ditches, but serious damage did not result…Farmersdrove wagon loads of sightseers to points along the course and stationed themselves beneath shade trees; others placed chairs in front of their homes and children waved □ðags,whileallalong the route the greeting was uniform and profuse…Someparts of the roads were so bad that the riders were forced to dismount and walk their machines through the deep sand. This, of course, caused them to increase their speed as soon as a clean stretch was found. Pedestrians and travellers cleared the track and gavethem the right of way, driving into the ditches in order not to hinder the prize-seekers…thedustrose in clouds wherevera rider was making much more than 10mph…many minor accidents were caused by blinded men running into deep ruts, over culverts and into roadside ditches or failing to notice sharp turns ahead…one rider

Following the FAMenduro the riders paraded through Indianapolis.

made a complete somersault with his machine and then continued on his way as though nothing out of the ordinary had occurred…theboys made no attempt to 'burn up the town' upon their reaching Columbus…veryfew were to be found outside their rooms after nine o'clock…the riders spoke in profane terms of the wretched roads between Coshocton and Newark…cheer after cheer sent the contestants on rejoicing…Themachines were taken from the exhausted men at the checking station by members of the Idiana Club and pushed to the Cadillac automobile garage,half a square away, where they were housed under police vigilance…"Gold awards for perfect 1,000-mark runs went to 38 riders; 26 either failed to □ðnishout□ðnishedmore than two hours pas the deadline (one with a wooden 'cage' □ðttedbyablacksmith to hold his frame together).

TWODAYSOF RACINGATTHENEW Indianapolis speedway were to have been an integral part of the FAMprogramme of events; it had been "widely, not to say wildly heralded" as a record breaking track. Indianapolis was the world's second purpose-built, banked oval racing circuit after Brooklands; with and the □ðrsttobecalled a 'speedway'. With a permanent seating capacity of 257,325 it is now the highest-capacity sports venue in the world. But it didn't get oī to a smooth start: "The huge track, the immensity of which one must prove by personal visit in order to appreciate, failed most dismally to materialize."Thestate of the track put oī most of the entrants for the 10-miler for professionals–in the

A dramatic poster and a dramatic race, but the poorly prepared track put Jake de Rosier in hospital.

Idianapolis got oī to a shaky start but great days lay ahead.

event it was a head-to-head between Jake de Rosier (Indian) and Eddie Lingenfelder (Thor). They gave the crowd a great show until "de Rosier's machine hit a depression in the track. His front wheel was twisted and his tire ripped oī. The champion fell in a cloud of dust. He had been going at the rate of 60mph…a hasty examination showed not only scratches and bruises but also a painful and organic wound necessitating an operation and certain to incapacitate him for the duration of the season…it is quite probable that he will never ride again in his old-time form." Six other races went ahead that day with reduced entries but the riders got together to discuss the state of the track and called of the second day's racing was cancelled.

Here's de Rosier at full chat on his Indian at the LA Industrial Park track

SOME CYCLE PACERS WERE TANDEMS with two-man crews: one to steer, the other to control the engine. One such machine crashed over the safety barrier at a brand new banked wooden velodrome in Berlin when a tyre burst at more than 50mph. As it landed in the crowd its fuel tank exploded. Several spectators were burnt to death, many more were injured. The German authorities suspended motor cycle pacing of cycle racing.

When a double-manned cycle pacer crashed in Berlin a local reporter wrote of "a river of □ðre".

"THE ROADS IN THE NEIGHBOURHOOD of Coventry are notorious for what are called 'potholes'. In some districts these are □ðlledupwithtar and stones and rammed in, but outside the borough of Coventry we have never noticed any attempt to □ðlluptheseholes properly."

THE EDINBURGH MCC'S FIVE-DAY reliability trial to John-o'-Groat's and back attracted 26 starters. "The roads were indescribably bad for practically the entire distance of 176½ miles between Inverness and Thurso, and the competitors reached their destination draggled and plastered with mud from head to foot. Probably no competitors in any motor cycling trial have ever had to face such an exacting journey." One long downhill section boasted two emergency escape roads, one with a 20% upward slope to stop runaway vehicles. By the end of the □ðve days and 768 gruelling miles six bikes had dropped out; only two won gold medals for perfect scores: HH Salvesen and SJK Thomson, both on 3½hp Triumphs.

M Pratt (3½hp Brown) rode further up Amulree Hill than any other competitor, but it beat him in the end.

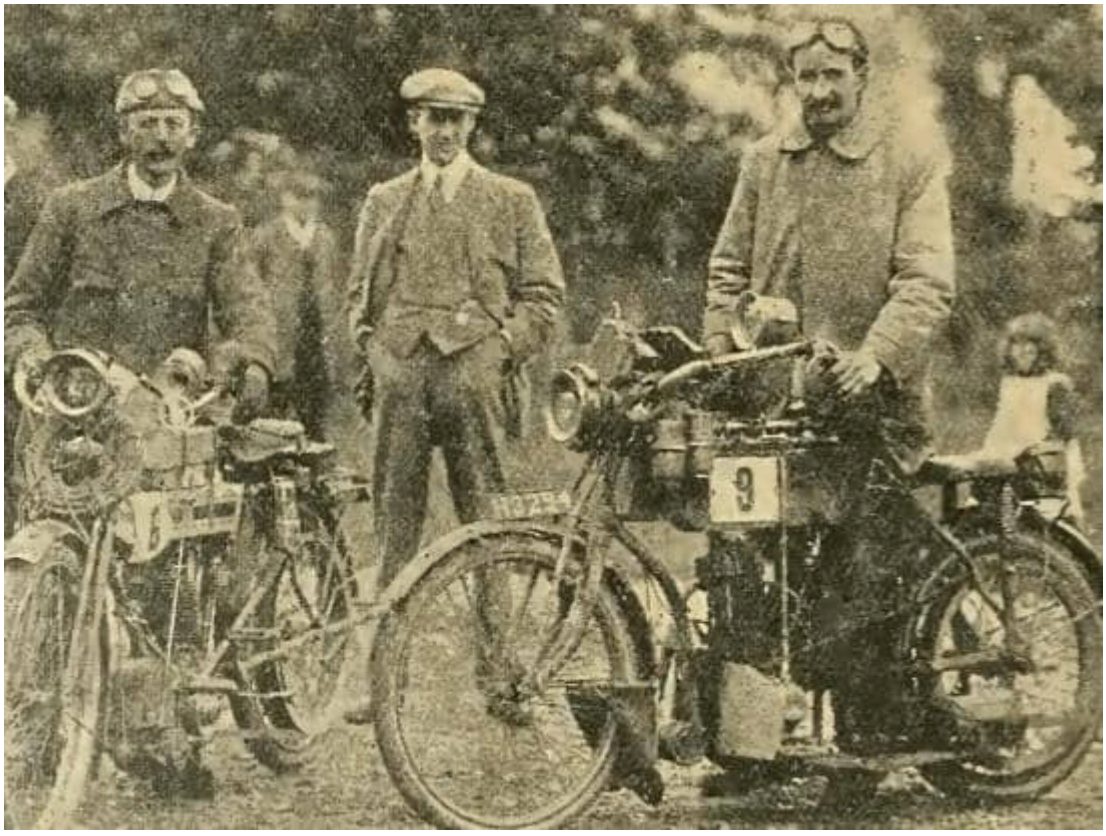
NO LESS THAN 17 CLUBS entered teams in the MCC's Inter-Club trial. The MCC won, ahead of the Coventry and Warwickshire and Oxford MCCs.

THE ACU CONDEMNED SUNDAY events and by no means all of its members agreed. The chairman of the Western District MC commented: "Surely the aīiliated clubs are at liberty to hold competitions (not ill-climbs or races) without the grandmotherly legislation of he ACU, and I am of the opinion it is exceeding its powers. Our members are nearly all employed in oīices or are in such a position that they cannot take Saturdays just when hey choose, and even when two o'clock comes there is lunch, change, getting home, and getting to the rendezvous, this all means time. Now how is it possible, after allowing for contingencies, say, to make a start at □ðve o'clock and run oī a 200-mile reliability trial in schedule time? It is unreasonable.
These supporters of our competitions are after all the 'live' members. The sooner the ACU rescinds such 'silly' resolutions the better, otherwise, my club seriously contemplates withdrawing its support. We feel very angry in this matter."

This would have stirred up the Lord's Day Observance crowd; the caption in Motorcycle Illustrated read, "The Lady in Black Leather: Have you seen her? She rides a white NSU at a red-hot pace and is capable of keeping up with the best of 'em."

THE ACU'S ATTITUDE TO THE LORD'S Day might explain why the MCC ran its 24-hour reliability trial on a Friday and Saturday, rather than over the weekend. Exactly four hours were allowed for

each of six laps from Taplow to Oxford and back, making a total of 450 miles. Riders had to keep to an averageof 19mph. One mark was lost for every 15sec ahead of or behind schedule. The local garagerigged acetylene gas lamps to illuminate the overnight control and arranged petrol supplies. Harold Karslake('nondescript' won the silver cup, with Hugh Gibson (3 1/2hp Triumph) a close second.



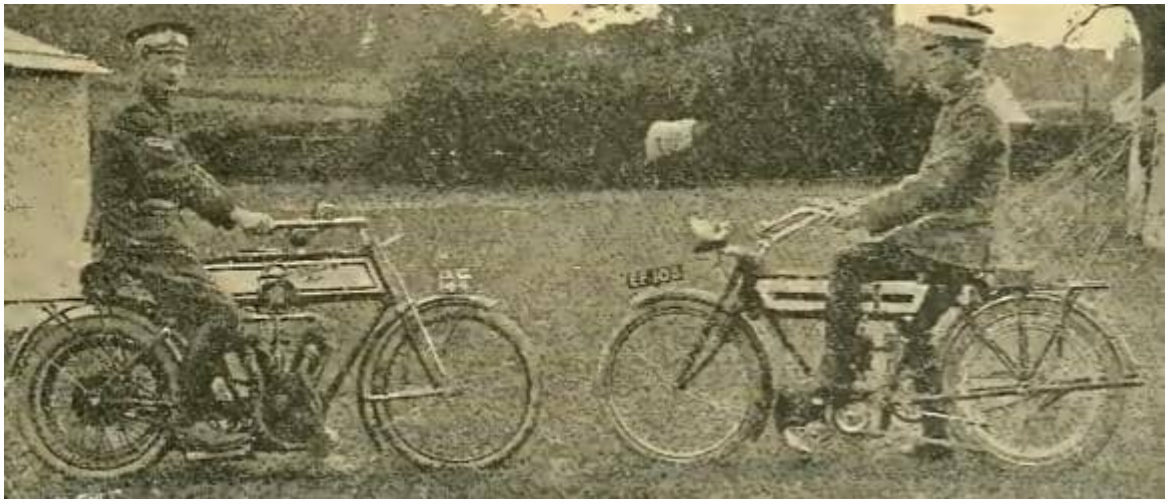
Left to right: Runner-up Hugh Gibson, MCC trials secretary Harry Bell and cup winner 'Oily' Karslake with the Dreadnought.

Karslakesubsequently paid a handsome compliment to Gibson:"I feel that some recognition is due to Mr Hugh Gibson for his very sportsmanlike behaviour…hewas only two marks from me on the losing side after the third round, and stood a very good chance of winning, as he had a much better watch than I. Yet on the two last rounds he was sportsman enough to giveme the exact time □ðvemilesfromhome, so that we should both have an equal chance as regards time. It is such instances as this that promote the good fellowship which exists amongst motor cyclists, and I cannot □ðndwordstoexpress my admiration. I may perhaps mention that I had only met him once previously, when on the last London-Edinburghrun we rode together from Stamford to Edinburgh. It may interest your readers to know that the machine I rode has done nearly three years' hard service, and has done about 18,000 miles without once failing me. The only adjustment during the trial was to replace two links in the Whittle belt at Oxford on the □ðfth round. I think it is safe to claim that this is as little as any other competitor did to his machine." [Karslake had only just joined the MCC. Yearslater he recalled: "I was invited to a MCC

Dreadnought as she is today, still in regular use after 114 years (add one for every year after 2018).

Smoking Concert, and although I did not know a single person there I was made perfectly at home. I was so pleased with the boys that I decided to join them."] His 'nondescript' motor cycle was The Dreadnought, built to his own design. She survives to the present day and is ridden on the Pioneer Run by Vintage MCC members in his memory. Mind you, not everyone was so happy with the trial. A local doctor wrote: "Might I suggest that the next time the MCC hold this trial it favours a route where it does not cover the same ground twice during the night. I live on the Henley-Oxford main road and was kept awake the greater part of the time by the machines roaring through the village with their cut-outs open. I should not have minded if they had only come through once. I am not an anti-motorist, as I ride a motor cycle and drive a car."

THE ACU SET UP THE AUTOCYCLE LEGION, "with a view to placing at the disposal of the War Oīice a body of motor cyclists able to take an intelligent part in the defence of their country in a time of national danger". ACL 'commands' were quickly established in London, Essex & Suīolk, Bradford, Manchester, Oxford, Glasgow, Kent and Reading. The Army did have some motor cyclists within its ranks. Stanley Glertson (9hp Bat) and John Dale (3 1/2hp Triumph), both members of the Middlesbrough & DMCC, were attached to D Squadron of the Yorkshire Hussars. Their adjutant described the motor cyclists as the most useful men in camp. More riders were encouraged to join the ranks of the Territorials. A 'Technical Reserve' was established, including "members of the medical and veterinary professions, civil engineers, and especially electrical engineers, railway and telegraph personnel, the owners of motor cars, motor cycles, balloons, aeroplanes, etc, [who could] render service of the greatest value." The Blue 'Un, under the heading '**Wake up England!**' warned: "Many foreign countries long ago recognised the utility of motor cycle despatch carriers, and have for some years employed squadrons of motor cyclists in military manoeuvres." Both Germany and Austria had well organised groups of riders who were being used in military exercises.

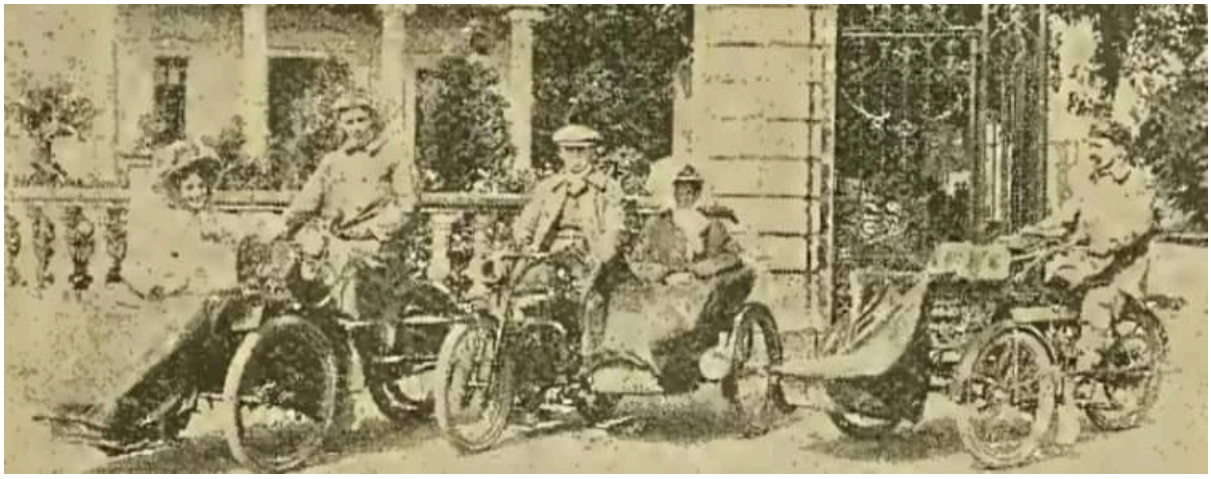


Motor cyclists clearly belonged in the cavalry; this pair were hussars.

Motor Union members volunteered as despatch riders in Army manoeuvres. The bikes pictured here were a Rex, Triumph, Singer, Moto-Reve twin and Zenith Gradua.

THE BIRMINGHAM AND OXFORD MCC swent head to head in a climb up Irondown Hill, near Deddington, Oxon. Each club □ðeldedsixofthe best; the Brummies recorded an easy win. There were few spectators because Irondown Hill was an open road so they kept the contest quiet.

DECADES BEFORE THE FORMATION of the □ðrstsidecarclub a group of 'passenger motor cycle owners' (sidecar out□ðtsandforecars) met at Stratford-on-Avon "to compare notes on □ðtmentin the way of gears, lamps, and tyres." In the event 13 combos and forecars turned up, had a good time and determined to make the get-together an annual event.



Threeof the 'passenger motorcycles' at the Stratford rally: a 6hp water-cooled Rextricar, a 6hp Rex-de-Luxewith a Mills-Fulford sidecar and a 3½p Humber forecar, all with some form of two-speed transmission.

IXION MADEA CRI DE COEUR:"The bulk of the riders of to-day are still young, dashing, athletic, vigorous, and mechanically-minded. But amongst them there remains a strong leaven of us old stagers who have lost a portion of our old dash and agility and daring. We now leave to others the thrilling dash round the bend of a fearsome hill, with the wall of the tyre where the tread should be, and the left or right ear tipped over sideways till it nearly fouls the bumps on the road. We are not quite so powerful at heavinga machine oī its mark as we used to be, not quite so graceful in vaulting into the saddle as the impatient engine gathers way. We do not dive in between a couple of carts or two

JMcDougal, treasurer of the Hull MCC, pictured with his family on their 6hp Sarolea twin combo, sums up the older rider Ixion referred to.

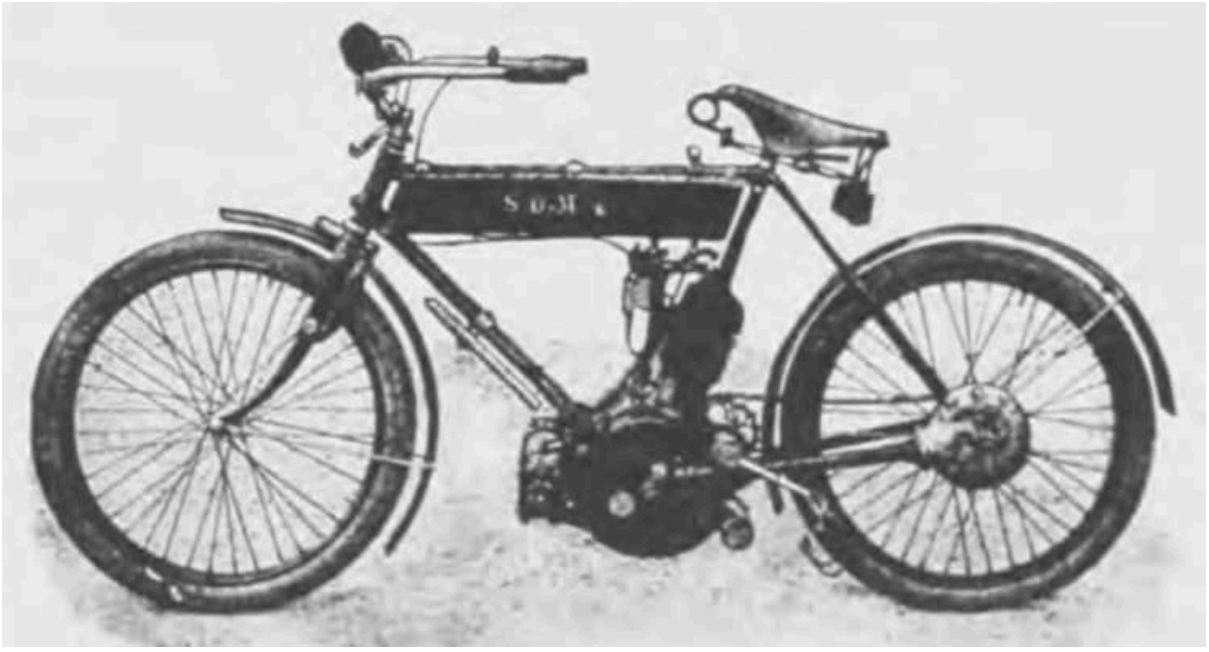
suspicious bullocks half-way up a steep hill with the old verveand aplomb. We are liable to streaks ot lumbago across the small of the back after 200 miles in the saddle, to touches of

cramp in the □ðngersandwristsafter they have gripped a steel bar for a day and a night. We want machines even more docile than the present handle-lever-controlled tourist mounts; we want a less gymnastic mode of starting; we want the engine to start us up a grade, instead of our having to start it; we want to be able to potter up the long curly ascent when the roads are slimy, strewn with traïic, and so forth; we want absolute, not comparative, freedom from vibration; and we want a lot of other things we dare not ask for yet."

A POLICEINSPECTORTOLDACOURTin Bedworth, Warks that he intended to charge every motorist who exceeded6mph in the town centre. TheMotor Cycle commented: "Motor cyclists should note this statement, as their only course in future appears to be to dismount and walk through the Market Square. Thosewho are acquainted with the town of Bedworth will not consider, it a particular hardship to avoid the place altogether unless important business necessitates a visit." Eeeeew…

Torpedos were produced in Czecohslovakia from 1903-12. As well as ioe singled and V-twins Torpedo ventured into new territory with an in-line V4—this is a magni□ðcent21stcenturyreplica produced by a Czech enthusiast.

GEORGEDEWALDOF BROOKLYN.who claimed to have built the □ðrstinaseries of shaft-drive bikes in 1901, □ðnallygothisideas ito production with the SD(for Shaft Drive) Manufacturing Co. TheSDMdebuted at the New York motor vehicle show in Madison Square Garden, one of three new marques among the 19 on display in the basement area dubbed 'Pneumonia Alley'. It was not the □ðrstshaftyonthe USmarket (the Belgian FN in-line four arrived in 1905; the Pierce that it inspired in 1909). But the SDMwas the □ðrstsingle-cylindershaft-drive motor cycle in the USA. It incorporated a patented multi-plate clutch as an engineshock absorber to "overcome the shock and vibration in vehicles propelled by explosive engines, more especially motor cycles, incident to the □ðringofthecharge when the motor cycle is □ðrststartedor after it is started when the load is very heavy, as when climbing a hill". TheSDMwas rated at 3½hp (490cc) and 4hp (499cc) with a choice of battery or magneto ignition and it could be "equipped with spring fork if required". A dentist named EAGainsford bought a SDMat the Madison Square Garden show and covered 2,200 trouble-free miles in 10months, reporting: "The transmission is surprisingly smooth, and when called upon, the machine alway provides a continuous powerful pull…AndI □ðnditapleasure to rub the road dust and dirt from a smooth tube rather than to keep a belt or chain in proper trim…"I know that a great many people are skeptical of the shaft drive when applied to a single-cylinder engine, but I can only say to them that the shock absorbing device applied by the said manufacture has rendered me a service that I am grateful for."

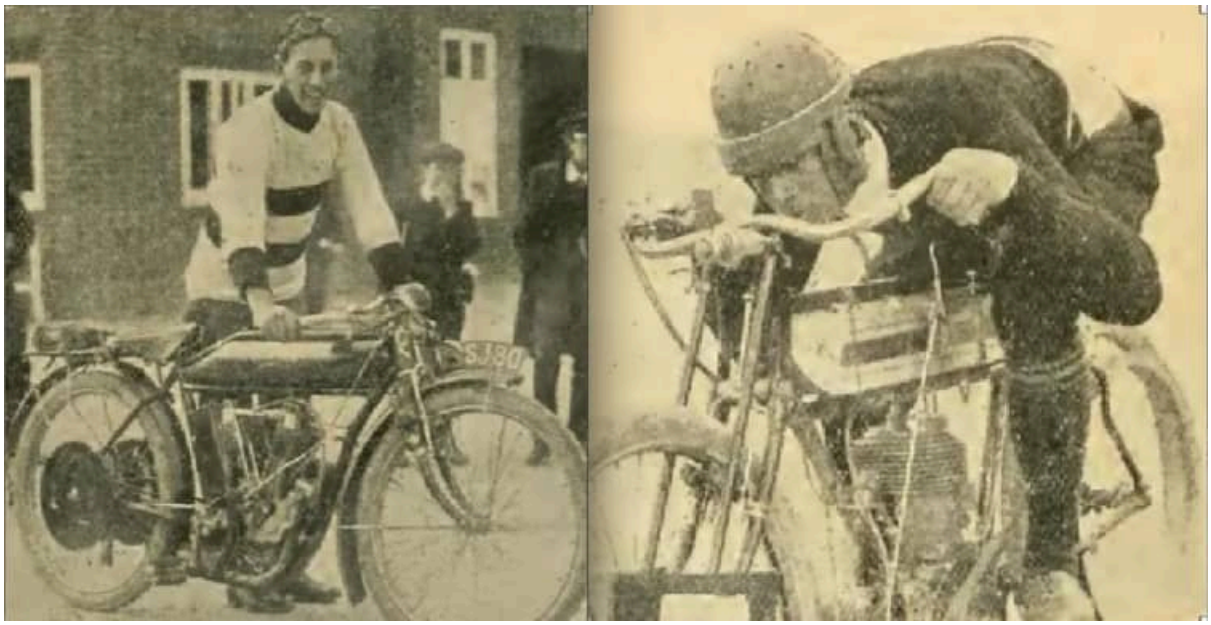


TheSDMwas the □ðrstshaft-drivensingle on the USmarket. But despite an eīective engine shock absorber it only survived three years.

"It has been again suggestedthat in all programmesof race meetings not only should the hp of the enginebe mentioned, but also the capacity in centimetres. Thevariation in the capacity of motor cycle enginesis certainly very marked, for machines of 3½hp vary from 400 to 499cc, and 5hp twins vary from 600 to 750cc."

BROOKLANDSWASBEGINNINGTOREFERto motor cycle capacity rather than horsepower. In a 5½-mile handicap race for bikes from 350-750cc the □ðrstsixridershome were on two 5hp Indians (of 616 and 638cc), 'scratch' while a 743 (4hp) NSUwas given a 20sec start, a 449cc Rex, 40sec; a 476cc Triumph, 45sec; and a 482cc Zenith (48sec). The □ðrstthreehome won £7, £3, or £2 with the option of trophies for riders who preferred glory to cash. Thehandicapper was

congratulated for ensuring close racing. G Lee-Evans (638cc Indian took the £7 at an average 60.5mph followed home by AR Evans Jnr (Triumph) and JC Smyth (Rex). Also-rans were W Dewar (Triumph), JT Bashall (WHB), FA McNab (Trump-JAP), AG Fenn (Triumph), AP Applebee (Rex), DF Steeves (NSU), ECW



Lee-Evans and his Indian roadster (note the number plate and mudguards) had □ðvewins. Right: From the contemporary report: "The leather helmet which is wisely worn by a number of Brooklands riders. It has proved worth its weight in gold to more than one racing motor cyclist."

FitzHerbert (FN), OC Godfrey (Rex), SF Garrett (NLG) and PW Bischoī (FN). Lee-Evans went home with a pocketful of sovereigns; he and his Indian won □ðveracesinall, including the Senior (500-1,000cc) and Roadster, for bikes up to 1,000cc in full touring spec including mudguards, two brakes, proper silencers (no cut-outs to be used) and toolkits weighing at least 3lb. The big boys were out to play too in the eight-mile Championship Cup (up to 1,000cc). JAP's latest 20hp twins were clearly the order of the day. First and second spots went to Charley Collier and HV Colver, (both on 964cc Matchlesses) followed by LC Munro (995cc NSU), HE Parker (944cc NLG), Harry Collier (964cc Matchless), WE Cook (944cc NLG) AND WH Bashall (964cc Bat). Charley Collier's winning speed was 69.25mph.

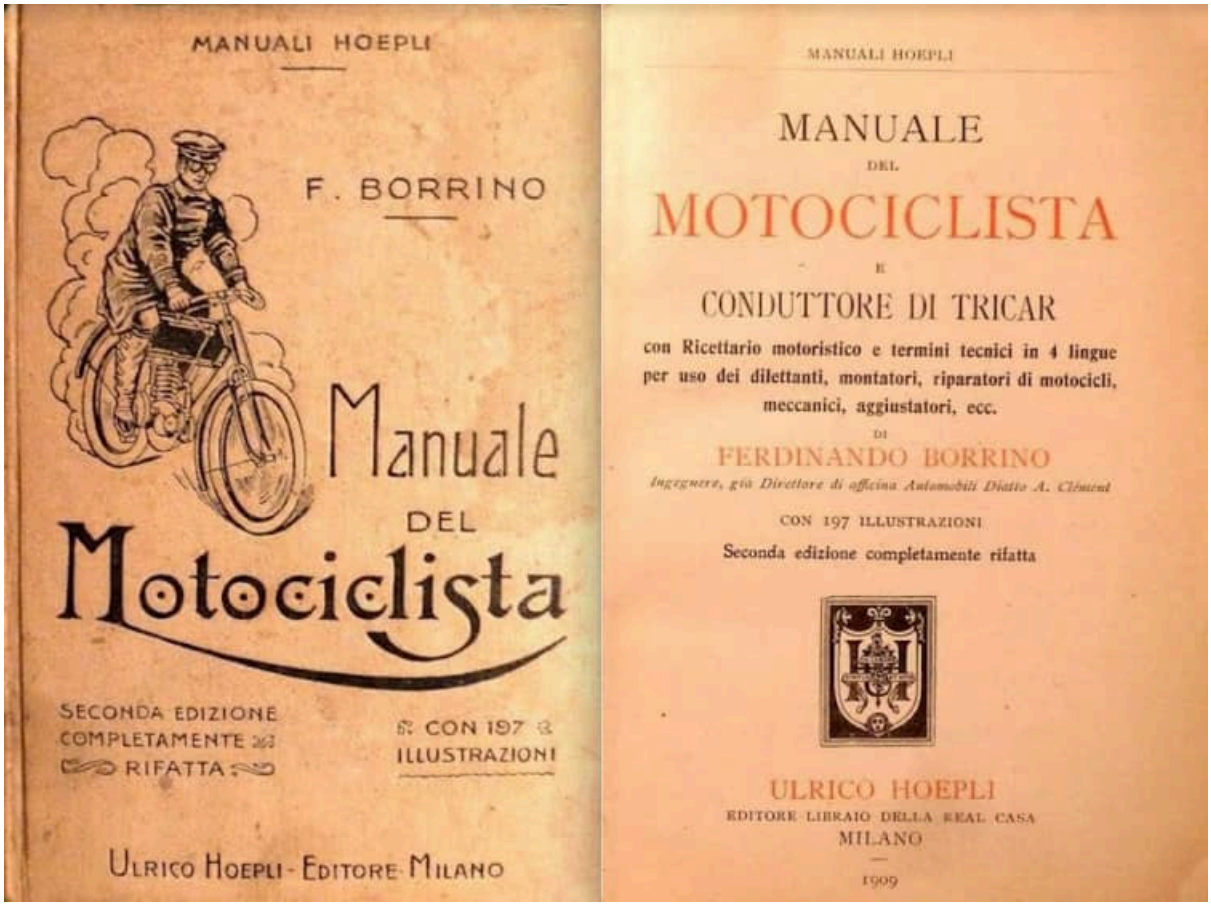
THE LEEDS MCC WERE ABOUT to start their hillclimb at Otley when a local resident asked them to □ðndanewvenueas his wife was ill and needed to rest. The clubmen willingly complied and a local bobby told the club's oīicials of a suitable hill at Norwood Edge, about □ðvemilesaway. The new venue was found to be a tough one and the Leeds boys had a jolly good time climbing it. JS Garrett (3½hp Rex) won, followed by four 3½hp Triumphs, another Rex and another Triumph. The grateful resident promised to present the club with a trophy for a future competition.

Leeds MCC hillclimbers at the viaduct over Ludley reservoir. Right: A helpful police sergeant saved the day by suggesting a nearby hill.

THE US STATES TYPICALLY ENFORCED speed limits of 8-15mph in urban areas and 20-25mph in the countryside. However, Arkansas, Georgia, Idaho, Maryland, Mississippi, Montana, Oklahoma and West Virginia and Wyoming had simply ignored motorcycles: no registration, no licence and no speed limit. The Federation of American Motorcyclists's legal committee published suggestions for 'ideal' motor cycle regulations including a 30mph speed limit and allowing a rider from one state to ride in another state for up to seven days.

IN THE FIRST HALF OF THE YEAR Germany's motor cycle imports fell from 209 to 99 as exports rose from 1,013 to 1,116.

FG SMITH (3½HP TRIUMPH) won the MCC's Edinburgh and Land's End trials, matching the success of SG Frost the previous year.



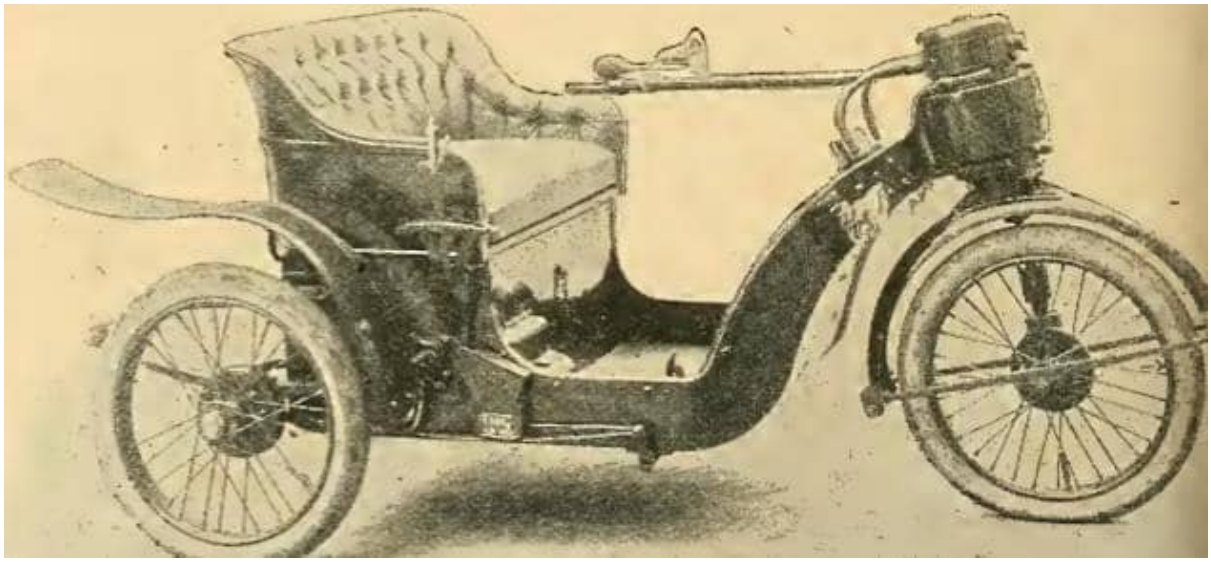
Brits turned to Motor Cycles and How to ManageThem; their Italian counterparts had the Manuale del Motociclista.

“WE ARESORRYTONOTICEagrowing tendency to make use of the rear carrier for the purpose of carrying a passenger,and trust it will not become abused.”

WILLIAMDOUGLAS,ONEOF THEtwo brothers behind Douglas motor cycles, had a busy year, competing in most of the major events on his lightweight 2¾hp □ðattwintogood eīect. In the ACU quarterly trial he earned a 100-mark certi□ðcate;ACU24hrPlymouth trial, silver medal; ACU Sutton Bank Hillclimb, runner-up; MCC48hr Edinburgh trial, special gold medal; ACU1,000-mile trial, silver cup and gold medal; Scottish □ðve-daytrial,bronzemedal; MCC 555-mile Land’s End trial, gold medal.

Douglas had a good year, consistently batting above its weight in the Mixed Metaphor class.

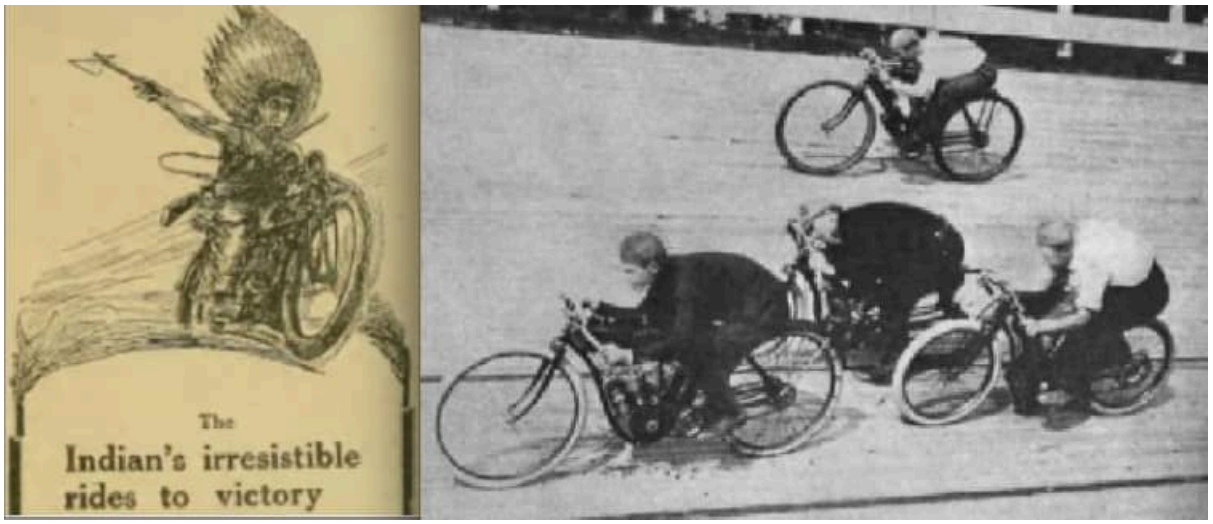
THE BERLINER ELECTRIC TRIKE made, as the name implies, in Germany, was launched onto the UK market by the Swan Electric Traction Company as the Swan runabout. The front wheel was driven by shaft from the motor over the front wheel; the 120amp/hour battery pack mounted behind the two-seat body was claimed to give a range of 50 miles on average roads. The mudguard took the place of conventional front forks with spring-steel bars to give at least some suspension. This was very much an urban runabout with a design cruising speed of about 15mph though higher speeds could be delivered in small doses at the expense of range. A van body was available as an option.



The front-wheel-drive Swan runabout oīered comfortable, albeit sedate, urban transport.

THEREPORTOFTHECOVENTRYandWarwickshire MC's third annual open hillclimb was headlined 'The Zenith Gradua has a Day Out'. Six awards were up for grabs and Graduas took □ðveofthemon the handicap formula (though Guy Lee Evans rode his Indian like a demon to record the fastest climb of the day).

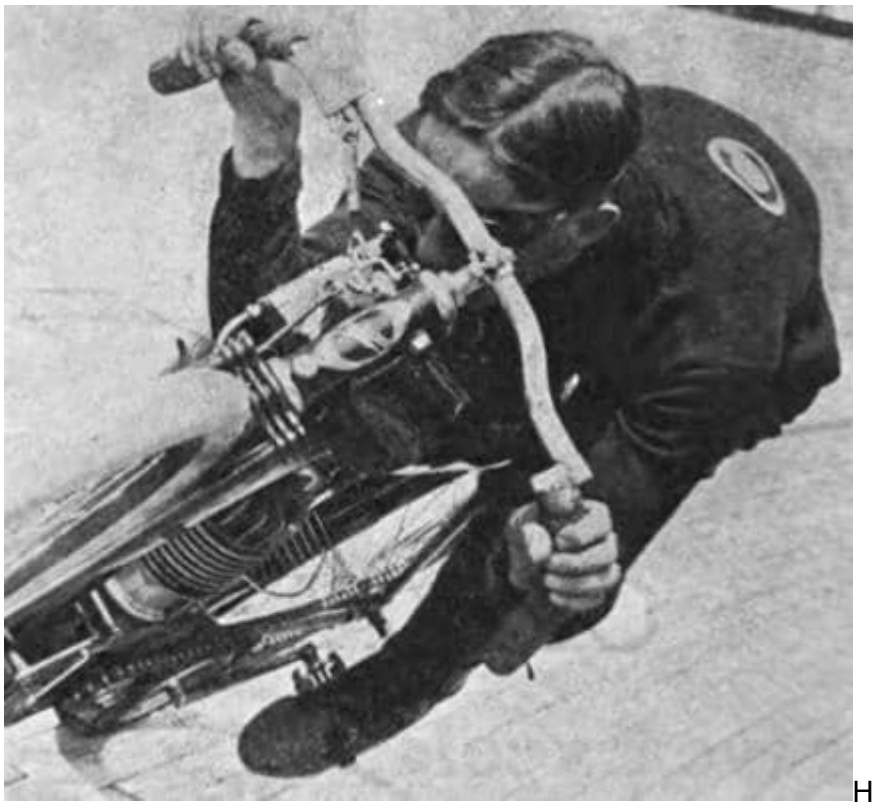
ENCOURAGEDBYTHESUCCESSOFINDIANS in England, Hendee set up a depot in London's West End, almost next door to the FN, NSU and Vindec Special depots: "Before attempting to introduce the Indian into England, it has been deemed best to □ðrstdemonstrateitscapabilities before the English public, although in the 1907 and 1908 Six Days' Trials of the ACU the Indian ridden by Mr Hastings, won two gold medals for reliability and the special prize for best appearance at conclusion of the trial. It is now history that the two Indian motorcycles which have been in constant use, both in track and road competitions, have secured more awards this season than any other two individual machines of other makes, although almost invariably having competed against machines of much larger cylinder capacity." A pine-board track opened in Springield, Indian's home town. It measured 5,767ft 8in (measured 18in from the inner rim) and was claimed to be the fastest in the USA. F Huyck duly tried it out on his 7hp Indian–in an hour he covered 71 miles 620 yards; en route he set a 50-mile record of 41hr 49.6sec. In a mile trial with a □ðyingstartHuyckcut the record from 45.6sec to 42.6sec. Jakede Rosier, in a standing-start mile



INDIANS! Hendee set up camp in the wild West End. Right: De Rosier, Hedstrom, Huyck and Gustafson tried out the new Spring□ðeldspeedbowl.

trial, cut the record from 47.2sec to 43.2sec and, in the 25-mile professional race, cut the seven-mile record from 21min 38sec to 20min 13.4sec: "Away and beyond all other men on the track shone De Rosier, of the graceful physique, and with all the tactics of a racetrack general." Chas Gustafson took his Indian to Spring□ðeldtocover300 miles 1,174 yards in six hours. Chas Spencer (also on an Indian) did 559 miles 587 yards in 12 hour and kept going for 24 hours to cover 1,093 miles 199 yards; Gustafson managed nearly 1,044 miles. This was way ahead of the 775 miles 1,340 yards recorded by Harry Collier on what the Yanks referred to as the 'Cannington' track. All these records were sanctioned by the Federation of American Motorcyclists. Elsewhere in the USR Seymour (Reading-Standard) went record breaking at the Coliseum Motordrome in Los Angeles. He completed four miles from a □ðying-startin3min 17sec and went on to set seven, eight and nine-mile records at 5min 45.8sec, 6min 35.8sec and 7min 25.2sec respectively. Eddie Ligenfelder (7hp NSU) set records at two miles, 1min 38sec;

six miles at 4min 50.8sec, seven miles at 5min 38.2sec, eight miles at 6min 26.6sec, nine miles at 7min 15.8sec, 10 miles at


Huyuck did a mile in 42.6sec, and clearly the need for a neat centre parting was more urgent than the need for safety equipment.

8min 6.8sec and 15 miles at 12min 28sec. JakeDe Rosier began racing 100-mile record trials there but it was MJGraveswho rode his Indian into the long-distance record books, covering 100 miles in 1hr 27min 49sec, beating de Rosier's record by 11min 10sec. Nonetheless, Jake's popularity was such that promoter and board track builder JackPrince hired him to race at the opening of many of the board tracks that he was building across the country. Therewas some controversy over the tracks themselves: "Some Rochester [NY] men are thinking of building a motorcycle track. Theyclaim that a six-lap [to the mile] track will saveland and lumber; but it will not savelife. A six-lap [to the mile] motorcycle track is a death trap. If the Rochestermen build a six-lap track they should be indicted for murder in the □ðrstdegreeatthe □ðrstkilling, because premeditation could easily be proven." But there's no doubting that the American Eagle was eagerto gobeak to muzzlewith JohnBull. "Now for an aīiliation with the ACU, and international competition," said the USFAM."We con□ðdentlyfeelthatthe Briton has absolutely nothing on us. Let us have an opportunity to prove it."

The Indian team was also in action at Daytona: Oscar Hedstrom (who was the current US champ), Walter Goerke, Robert Stubbs and George Chapple.

THE ACU DECIDED TO RECOGNISE records set by motor cycles up to 275cc, 344cc, 500cc, 750cc, 1,000cc and unlimited. It had previously only recognised records set by bikes up to 76x76mm (345cc) and unlimited. The ACU's competitions sub-committee got the ball rolling by listing the record speeds over a measured miles at Brooklands, the UK's fastest track (giving speed to no less than three decimal places instead of the previous system of □ðfthsofanmph): 275cc, GL Fletcher (274cc Moto Revetwin), 45.447mph; 344cc, not yet set; 500cc, HH Bowen, 482cc Bat single, 64.283mph; 750cc, G Lee-Evans (638cc Indian twin), 64.702mph; 1,000cc WE Cook (944cc NLG twin), 75.678mph.

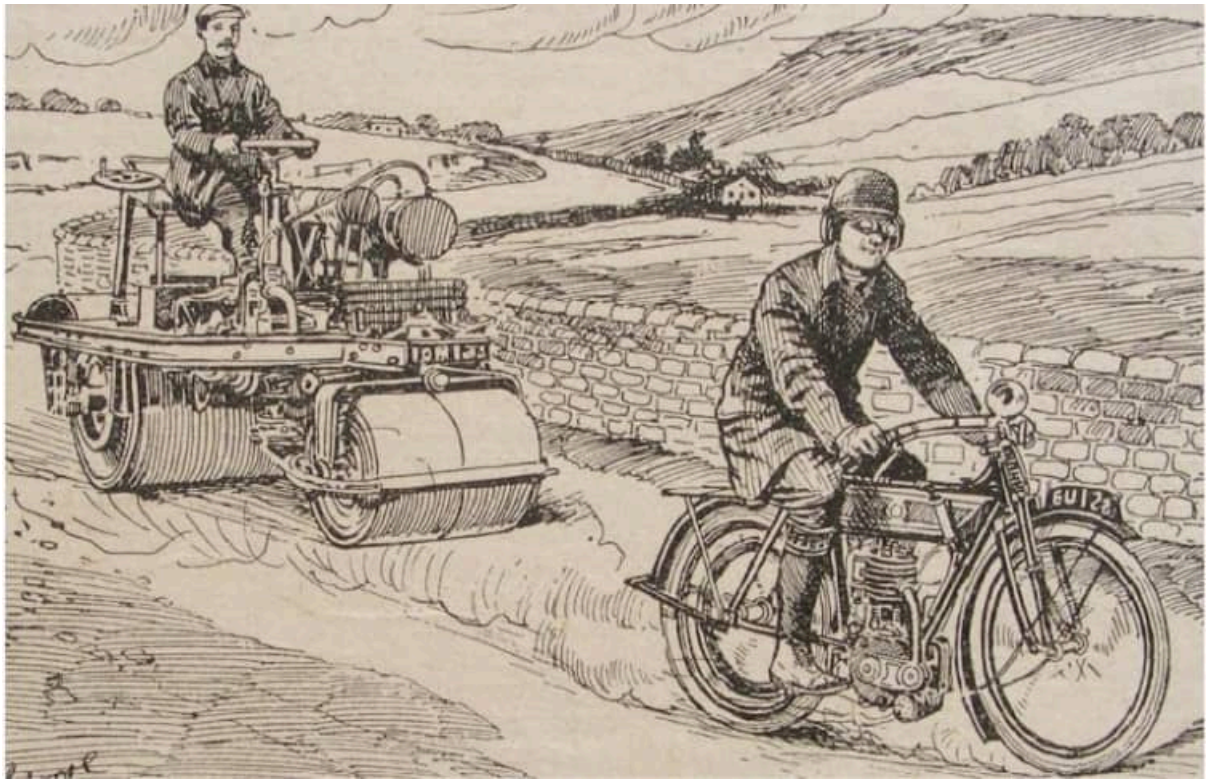
HENRYK WEISS PUTREX ON the Polish map by winning the 178-mile Motorcycle Championship of Warsaw in 5hr 2min 43sec. The runner-up was another Rex that crossed the line 37sec behind him.

Weiss was a winner in Warsaw.

“THE SOUTHAMPTONBENCH LASTWEEK□ðnedtheir own □ðrebrigadecaptain for driving the town’s motor □ðreengineatthirty miles an hour. Thecaptain urged that it was necessary for him to practise driving at this speed. It would be rather provoking to the magistrates if, supposing one of their residences caught □ðre,the□ðrebrigadecaptainrefused to do more than crawl to the scene of the con□ðagration.”

THEWINNEROF THENOTTINGHAM&DMCCpetrol consumption trial, riding a 3½hp Triumph, managed 211mpg.

A SIX-DAYSMOTORCYCLERACEwasarranged at Brighton Beach, New York. Nine three-rider teams had entered; □ðvestarted.Manythousands of spectators were expected; 500 turned up. It began to rain so after 11½ hours they all went home. At that point the New YorkMCC team was leading, having covered 599 miles, 19 miles ahead of the Harlem club.



Remarks that a spot of rolling might have bene□ðttedpartsof the TTcourse inspired one wag to pen a cartoon.

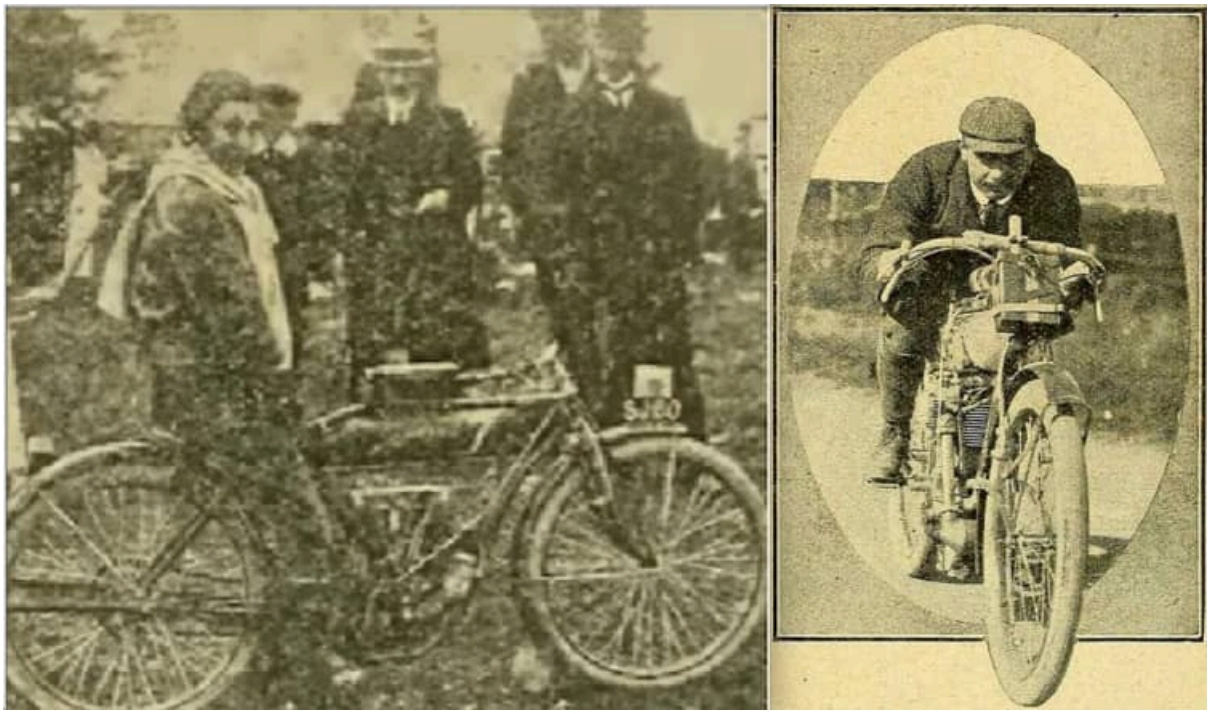
IN ITS PREVIEWOFTHETHIRDTTthe Blue 'Un noted: "Several of the twin-cylinder machines are only 1cc short of the limit. Truly this is cutting it □ðne.Itmeansthat if both the cylinders have worn a hair's-breadth by the end of the race, the capacity of the engine will exceed the limit…Nearly all the machines appear to be sound and sensible mounts, and the freak element is entirely absent…TheIndians,the Scott, and one or two of the Triumphs were wonderfully quiet…From Peel to St John'sit is again bumpy. It is a great pity the Highway Board has no steam roller, as without it a really smooth surface cannot be obtained." Therewas no limit on fuel consumption and the singles and twins, limited to 500 and 750cc respectively, ran together. Clerk of the Scales was BH Davies. Well they couldn't run a TTwithout Ixion. He was asked for his TTpredictions: "Beyond doubt it was Marshall's corner work which greatly helped to return him a winner last

JLeno (3½hp Premo) was entered for the 1909 TT but dropped out after a collision during practice. A pity because the Premo was a fast two-stroke single developed by Premier that Leno went on to ride to good eīect in a series of hillclimbs. In the Birmingham club's event he beat the favourite, a Rextwin ridden by one H Rem Fowler. (My thanks for the pic to Bill Snelling who found it in his unmatched archive of TT photos. Well worth tracking down.)

year. The course bristles with corners, and the man who can negotiate them without losing a possible second is the man who, other things being equal, will win. The only newcomer in whose favour I shall venture to make a reservation is Giuppone. None of our men can teach him anything at the racing game, whether in tuning or steering or nursing; and I have heard a very good account of the new 84x86mm (476cc) Peugeot engine. Of course some of our trade cracks are getting on in years, and as years increase a man necessarily parts with some of the reckless aplomb which leads him to take sporting risks 50 times in an afternoon. But Marshall, Collier, and Co are as young-hearted as ever they were, and if some amateur in his teens does display a bit more daredevilry, I think superior experience will beat him. My tip is to keep an eye on the old stagers." A contemporary observer gives a □ðavour of the big day: "The brakes were tested; the men being required to pull up or nearly pull up at a given signal between two points…such a crowd as has never before assembled at the Auto Cycle TT lined the road in the vicinity of St. John's…After the last trainload of spectators had arrived the last trainload of spectators had arrived from Douglas and Colonel Freeth, Chief Constable of

First riders away were JMarshall (3½hp Triumph) and H Reed (5hp Dot-Peugeot). Right: "Clerk of the Scales was BH Davies." Ixion, as usual, in the thick of the action.

the Island, had completed a tour of the course to see that all was in order, the word to go was given, and Marshall (3½hp Triumph) and Reed (3½hp Dot-Peugeot) leaped into their saddles at 10.22, their engines □ðringatonce.Despite the high compression used on many of the engines, it was remarkable how easily they started…the performance made by the Scott was so splendid that the crowd could not refrain a cheer. At the words 'Get ready' Myers (3½hp Scott) stamped on the starting pedal, and the Scott □ðredatonce;at the word 'Go' he was moving away in the saddle, before the man starting with him had hardly begun to run. It served to show the public how a motor bicycle should be started. The men were sent oī in pairs at half-minute intervals. As soon as the last man had been sent oī the crowd settled itself down to watch for the □ðrst arrival, and here and there people sat in advantageous positions on the grass. Hardly had they done this when a policenan's whistle blew loud and shrilly. Who was it? Eyeswere strained and necks craned forward to catch a glimpse of the rider. Was it Marshall or Reed?Marshall had kept his place, but Lee Evanson the red Indian, who started number seven, had leaped up to second place in order, and was travelling at a great speed…Nextin order passed Drury, (5hp JAP) Reed travelling slowly, Godfrey (3½hp Rex) going well, and Wells (5hp Indian), who stopped and retired as he had hurt himself in mounting the previous day, H Collier travelling at a great rate…Sproston (5hp Rex), who to everyone's astonishment removed his left boot and threw it on the ground…Evenatthis early stage there were several retirements [including] Carter who retired through a puncture at Glen Helen (irreparable as he had no repair out□ðt)…"Lee-Evans (5hp Indian) took the lead by the end of the □ðrstlapaheadof Harry Collier (Matchless-JAP); by the end of lap two Marshall (Triumph) was in third place. And that's how it stayed through laps three, four and □ðve,sixwhenLee-Evansstopped for petrol and oil. Collier took the lead and Marshall moved up to second place. Marshall was gaining on Collier when a snapped exhaust valve and



G Lee-Evans(5hp Indian) was only stopped by a pitstop. Right: Giuppone could only manage 12th place in the TTbut three days later he won a 5km voiturette race at the Paris Velodrome.

timing gear trouble stopped his Triumph. That left Collier and Lee-Evans to cross the line 1st and 2nd; following a close race Newsome (3½hp Triumph) snatched 3rd place from Godfrey. Giuppone on the Peugeot could do no better than 12th (his engine mis□ðred the whole time, and he lost his silencer on the □ðrst lap); Rem Fowler, on a Rex rather than his Norton-Peugeot, was 16th. James Lansdowne Norton (3½hp Norton) retired on the last lap with a lubrication failure. Collier's winning speed was 49.04mph though he did manage one lap at 50; 1st, 2nd and 6th placed riders were on twins; 3rd, 4th and 5th were on singles and Marshall was on course to win on his Triumph single–the debate about singles vs twins was not resolved. There was no lack of drama, as the man on the spot noted: "Naturally, as there was no limit to petrol consumption this year, the times were vastly faster, and naturally tumbles were more frequent. No one, however, experienced serious injury, which speaks well for the riders' skill." It also put extra strain on the bikes. There were 54 starters ("in allotting the numbers, the fateful 13 has been omitted"); 28 singles, 25 twins and a four. Only 19 completed the course within the time limit; 11 twins and eight singles. Sproston □ðnished 19th but "his arrival was greeted with vociferous cheering, as, despite several punctures, he had gone through the race with a broken ankle bone through catching his left foot between the footrest and the ground when turning sharply on the bridge between Peel and St. John's." Gibson (3½p Triumph) retired on the 9th lap but also deserved a medal for detrmination. His fuel tank came oī and he crashed at Kirk Michael on the □ðrst lap. His exhaust lifter came adrift; his brake jammed on; ran out petrol on the 5th lap, bought some paraīin at a cottage near Kirk Michael and ran on that. He lost his □ðller cap, his tank sprang a leak, so he bought more paraīin (twice). Leaking paraīin shorted his high-tension wire. Finally, the leak became so serious he gave at Kirk Michael on the last lap. Lee-Evans and his Indian came close to a win but in the event a Collier brother on a Matchless did it again with Marshall's Triumph in 3rd place British pride was saved, particularly with Giuppone, the Continental ace, and his Peugeot coming 12th behind two Matchlesses, three Triumphs, three Rexes, a Premier and a Bat. An American reporter con□ðrmed Oscar Wilde's

From left: OC Godfrey (3½hp Rex)was fourth in 3hr 31min 31.4sec. Returning to Douglas—the guard's van and carriages were so full that number of competitors stashed their bikes on an open truck and rode with them. Charlie Collier on his 5hp TTMatchless □ðnishingtheSnaefell hillclimb; the □ðnishingpostwasabout 300 yards from the Bungalow.

aphorism that "the Americans and the British are identical in all respects except, of course, their language" when he concluded his report on the TTrace: "…itwill be interesting to seeif it in its turn can lick the British cracks". Asif that bruiser of a TTwasn't enough,it was followed by not one but two hillclimbs . One was a six-mile climb up Snaefel where, for the □ðrsttime,TT competitors encountered the bends familiar to generations of fans as RamseyHairpin and The Gooseneck: "Snaefell, the venue of the climb…is generally regarded as the most severetest to which motor cycles haveyet been put, excepting, perhaps, the French Mont Ventoux hillclimb…Back to the man on the spot: "Seventy-□ðveentrieshadbeen received, but as it had poured with rain immediately after the TTRacethe day before, the roads were very greasy. Doubtless also many of the competitors were tired after the previous day's exertions, and a fair number of the machines which had competed in the TTwerenot in good enough condition for a hillclimb. Consequently only 35 starters put in an appearance…theresults were based on the performances on the two hills…acontinuous stream of motor bicycles poured over the mountain road to Ramseyafter the morning hillclimb. At the summit of the pass, where was the □ðnish,theclouds rolled by, at times enveloping the road in mist. This, however, in no way interfered with the competitors." Therewere classes for touring machines up to 750cc, single and twin-cylinder TTbikes and an open class up to 1.000cc. Lee-Evans,who must have been smarting over losing the lead in the TT,won the TTsingles class, ahead of Charlie and Harry Collier (in that order) but in the open class Charley and Harry were 1st and 2nd ahead of Applebee on his Rex.Charley Collier, having set the fastest TTlap, set the fastest time up the mountain, to average44.8mph. In the 1909 Features section you'll ïnd TTyarns including an interview with Harry Collier, the row that broke out between Indian and Matchless, some sound advice on what to wear and a poetic description of the great race that could only have been written by Ixion.

MOTORCYCLINGWASFASTGAININGin popularity in Australia. An enthusiast in South Australia reported that the market in his home state market was dominated by Triumph, FN and NSU.The □ðrstmotorcycle races were held.

Judgingby this line-up, in front of a dealer, NSU,FN and Triumph ruled the Aussie roost.

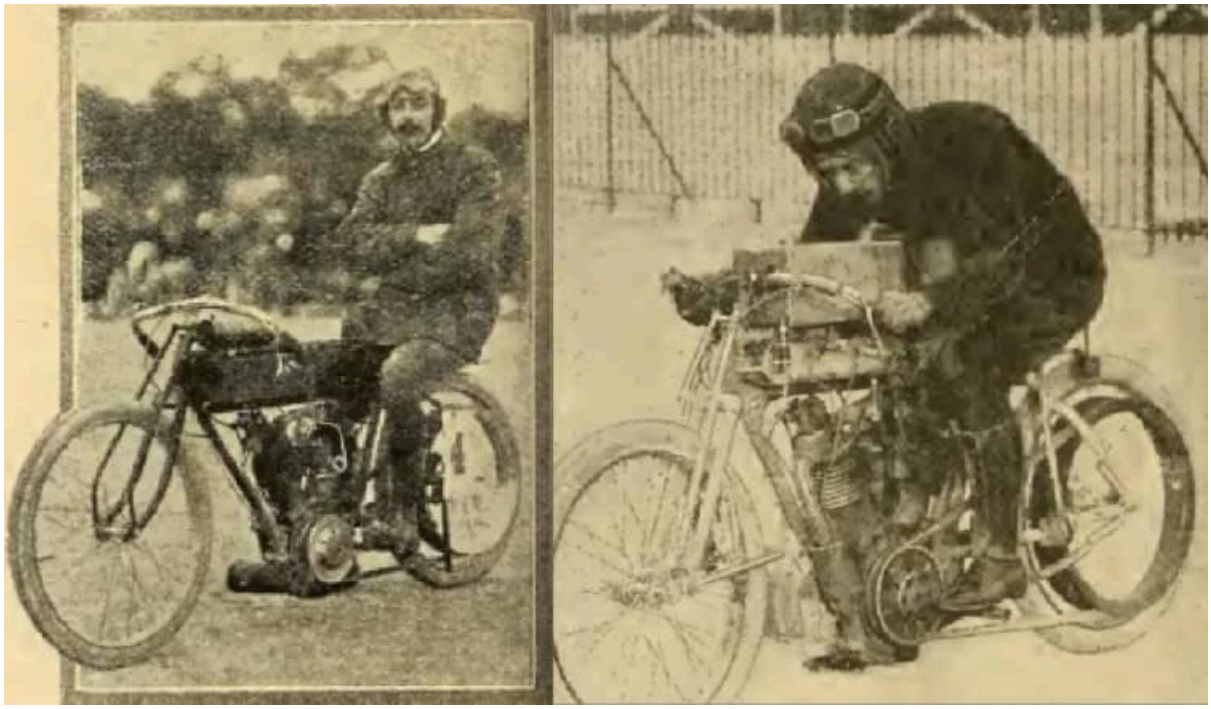
A group of 31 motor cyclists gathered for a photographer outside the Post Oīice in Christchurch, New Zealand. No less than 27 of them were on Triumphs; the remainder being on three Minervas and a Wanderer.

THE NEWLY FORMED MOTORCYCLE CLUB of Paris held its □ðrst competition, a 200km race on the 124-mile Guignes-Lissy circuit near Melun. M Bloch (8hp Rene Gillet) won in 2hr 23min, averaging 52mph with a fastest lap of 56.5mph. Runner-up was M Mouton (Aquilon); third, AM Fay (6hp Rene Gillet) who won a prize for the most consistent lap times. Non-□ðnishers and non-starters included Grapperon (12hp Albatross) who burst both tyres in practice; Pons 8hp NSU) who had belt troubles; King (8hp JAP) who had tyre troubles; and Harding (9hp JAP) who had an accident at Troyes.

URCHINS THROUGHOUT THE COUNTRY were in the habit of throwing their caps at passing motor cyclists but young Charles Davey of Totton, Hants picked the wrong target when he hurled his titfer at Major ET Dixon. The galloping major was a magistrate; he laid a complaint and a police sergeant was despatched to arrest Master Davey. Dixon's fellow JPs agreed "the act complained of was a most dangerous one". But Charles protested his innocence, saying his cap had simply been blown oī his head by a gust of wind and, although a sneaky little girl told the copper that she had seen the cap throwing incident, Charles Davey was found not guilty.

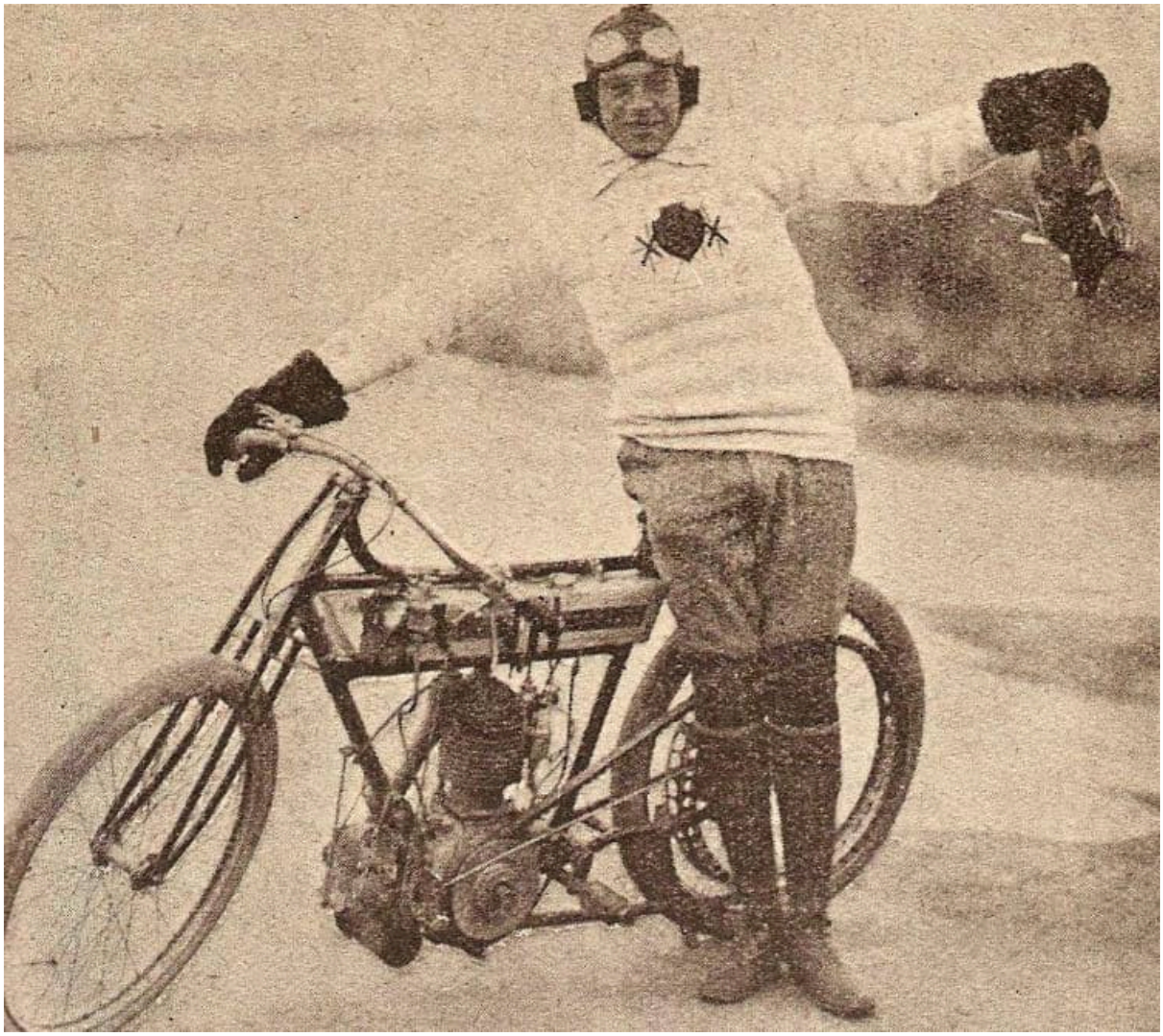
HV COLVER (964CC MATCHLESS) WON the British Motor Cycle Racing Club's two-hour race at Brooklands and set a world record of 118 miles 14 yards; well up on the previous record of 103 miles 38 yards. G Lee Evans (497cc Indian) covered 105 miles 60 yards to set a 500cc record. Colver also held the 50-mile record, at 50min 45sec, and the 100-mile record, at 1hr 40min 22.2sec. Some weeks later H Martin was lapping Brooklands on a 7hp (964cc) Bat-JAP in a bid to beat Colver's records. He wasn't fast enough to get into the record books at 50 or 100 miles, nor at one or two hours but he kept going and after three hours had covered 185 miles 936 yards, beating his own record, set at the Canning Town track, by nearly 15 miles. Next up was OC Godfrey, who was after the 500cc records on his 3½hp 493cc TT Rex. First to go was Lee Evans' 50-mile record which Godfrey cut

Start of the BMRC Two Hours' Record Race at Brooklands; Lee Evans is fourth from the left.



HV Colver (8hp/964cc Matchless-JAP)set 50-mile, 100-mile and two-hour records at Brooklands, covering 118 miles 14 yards inside two hours. Right: Harry Martin failed to take the one- and two-hour records but was third hour lucky.

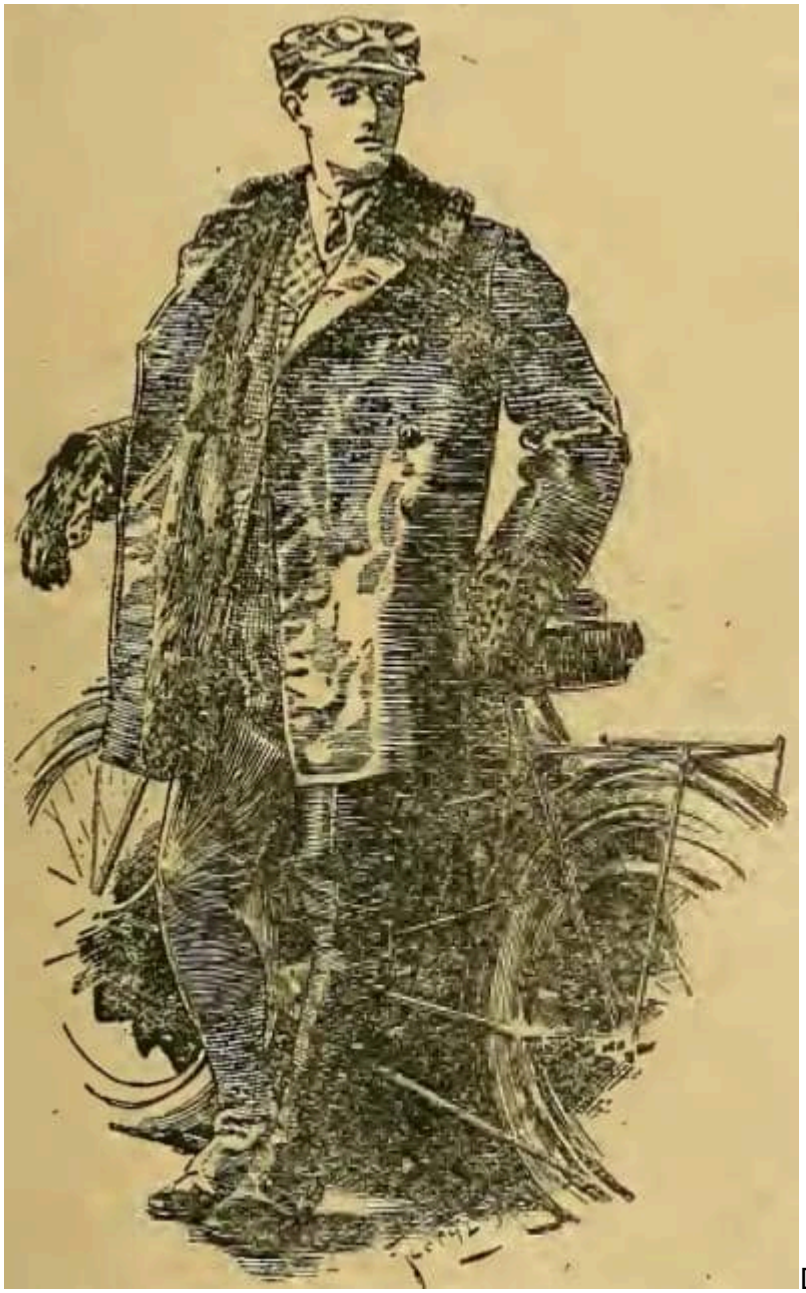
by nearly four minutes to 49min 59.4sec. Pausingonly for petrol, oil and hot Bovril, Godfrey rode on to beat the 500cc one-hour record (held by HH Bowen at 59 miles 485 yards) by 865 yards to 59 miles 1,350 yards. But after another 37 minutes he was seen to be holding his magneto, which was falling oī, and he was forced to retire at just under the 100-mile mark when he was 7min ahead of the record. TriviaDept: During his run Godfrey hit a partridge that had been a mascot on the Rexstand at the Stanley show. That night he ate it.



Godrey got his record, and a roadkill dinner.

“MR AG REYNOLDS, hon secretary of the BMCRC, made the □ðrst ascent of the new Brooklands Test Hill at the oīicial opening. The hill is 117 yards 1ft 3in long, divided up as follows: 105ft 10in of 1 in 8, 91ft 9¼in of I in 5, and 154ft 7¾in. of 1 in 4. Each section is marked by an electrical timing strip.”

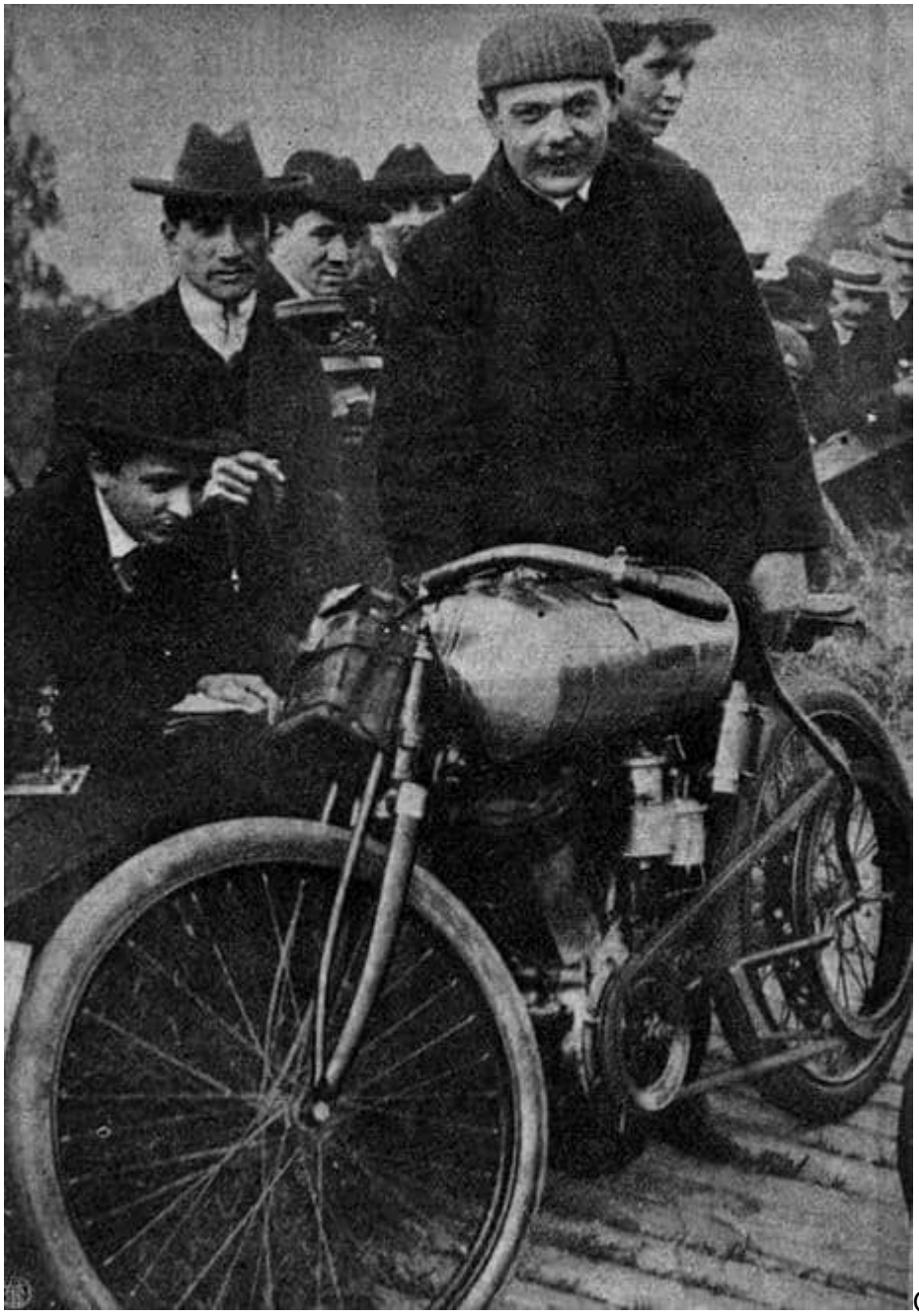
ALFRED SCOTT, THE MAN BEHIND the Scott two-stroke twin, wrote: “Since the International Tourist Trophy has again been won on a British machine, it seems a favourable opportunity to raise the question of English versus French measurements, and to ask whether it is not possible to take a bold stand in favour of the use of ‘all-British dimensions’?…There really seems to be no adequate reason why in this country (or in America) the motor cycle rejoicing in a 3in cylinder should be disguised as 76mm bore, or that the easily understood capacity of 30 cubic inches should be made incomprehensible by conversion into 493 cubic centimetres! In the list of entries for the TT the capacities of the competing engines made an imposing list of cubic centimetres just about as intelligible to the general public as the numbers in a telephone directory.”



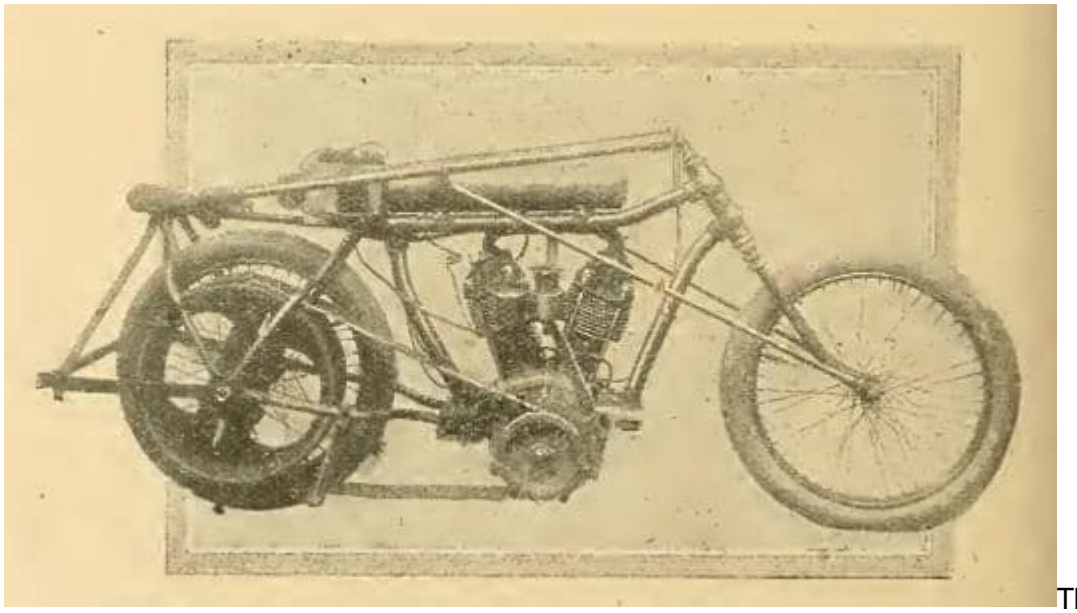
Discerning gentleman motor cyclists were wearing Burberry's latest fur-lined leather coat: "It is of the □ðnestpossible material, therefore sold at a high price." Burberry wasn't lacking testimonials; its garments had been selected to keep the cold away from members of the Shackleton South Polar Expedition.

IXION WROTE:"I GENERALLYHAVEahateful suspicion at the back of my mind when I read of a new speed record hailing from the States. I hope these suspicions of mine are wholly unworthy, and re□ðectratheron my own cantankerous temperament than upon the bond □ðdesofour Yankeebrother sportsmen, but I must admit that a long association with many forms of sport has generated in me an instinctive suspicion of Yankeespeed records, though Wells and Lee Evanshave compelled me to adopt a more open-minded attitude of late. At any rate, I am the more pleased to congratulate American motor cyclists on their recent acquisition of a splendid 24 hours' motor bicycle record. I daresay Collier could smithereen it if only the powers that be would let him charter Brooklands for 24 hours. Twostaunch Yankeeriders, Spencer and Gustafsen (the latter a naturalised Swede), each riding a 5hp roadster Indian, reeled oī considerably more than 1,000 miles apiece in one round of the clock, Spencer doing 1,089

miles 199 yards, and the Swede 1,043 miles. It is scarcely possible to impugn the genuineness of a distance record performed in public, and the more so when the same distance is theoretically easily within the compass of our own boys if only they could get a suitable track. What a day we should have if Collier and Lee Evans could □ðghtoutaninternational 24 hours at Weybridge."And while on the subject of the USA,he added: "Although an enthusiastic supporter of English productions, I think a word of praise is due to the way Lee-Evans'sIndian went through the race. TheRed Indian ran through the race with □ðyingcolours.Nota nut came loose, not a stay broke, whilst British machines were reported with burst tanks, broken mudguards and stays, as well as valves, piston rings and cylinder heads. Thebad roads in tht USAhave taught the Yankeehow to build a motorcycle to withstand the worst possible conditions…Amechanical oil pump was □ðtted,andthis,combined with the twist handle grip control, allowed the rider to go through the race without ever moving his hands from the rubber grips—a very good point when we remember how much diīiculty some of the competitors had in controlling and steering their machines. But, in spite of this, a British machine won, and so here's to the very good health of the winner!



Giosuè Giuppone, pictured at what was to be his □ðnalmotorcycloerace, at Turin's Umberto Motovelodrome. A few months later, while testing a Peuigeotracing car, he swerved to avoid a cyclist, rolled the car and was killed instantly.

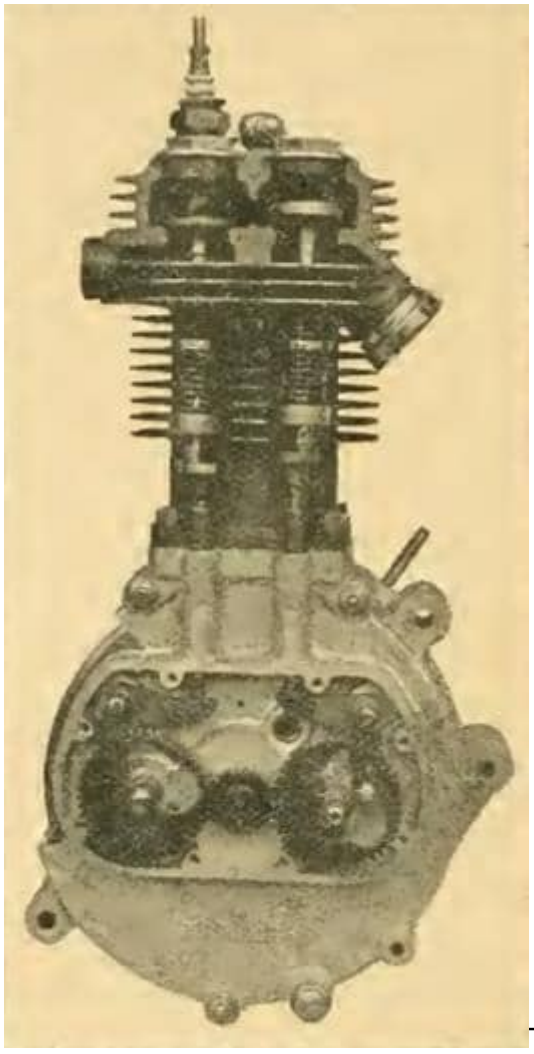

This 3.6-litre Peugeot-powered pacer was built to special order by Cripps Cycle and Motor Co of Forest Gate in London's East end.

THE AGGREGATE SCORES OF THE four 1909 ACU Quarterly Trials from put 3½hp Triumphs 1st, 2nd and 3rd in the hands of Messrs Marshall, Newsome and Griesbach. In 4th, 5th and 6th places were GE Stanley (Premier), W Pratt (P&M) and FW Applebee (Rex). Having made non-stop runs in four of the 500-mile trials Marshall also won the ACU silver medal. In the □ðnal trial in the series, running from Uxbridge to Banbury and back, riders could score a maximum of 100 points: 10 each for two hillclimbs; □ðve each for ease of starting, brakes, accessibility and stand/carrier; 10 for silencer; and 50 for reliability. Apart from the Triumph trio full marks were awarded to: W Pratt (P&M), WW Douglas (Douglas), F Dayrell (Bat), P Bischoī (Triumph), BV Jones (Premier), H Newey (LMC) and F Applebee (Rex).

Bats in □ðight: TH Tessier, H Martin and FW Dayrell, on their Bat-JAP spass Banbury Cross; all three made non-stop runs.

TRIUMPH EXTENDED ITS FACTORY to increase the production of hub clutches. This technology, with about 40 grooved steel plates built into the rear hub, allowed a bike to be started with its

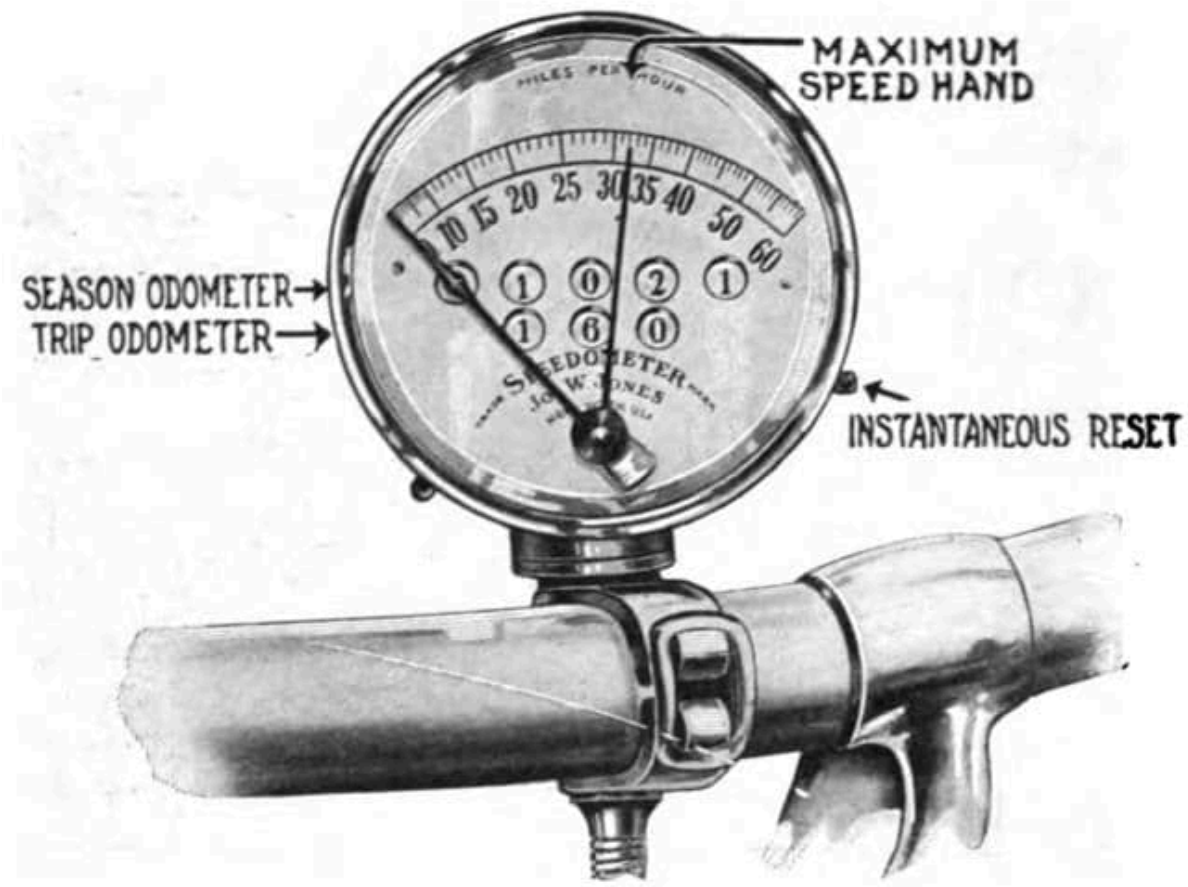
rear wheel on the ground. Control was via a heel-and-toe pedal. A user explained: “It is not only an advantage in starting, but renders a heavy motor bicycle much more mobile and convenient to handle. In traïic it is an untold blessing—no wondering whether the engine will stop and necessitate another run alongside—and on greasy roads it can be slipped to ease the jerk of the engine at slow speeds. Coasting down long hills silently and swiftly is also a □ðne experience, not to mention the saving of petrol and the cooling of the engine.” The all-conquering 3½hp Triumph was also given a mild makeover, starting with an increase in capacity from 476cc to what would become the industry standard 499cc with reduced compression ratio and heavier □ðywheels to enhance rideability. Other changes included mounting mounting the belt rim brake independent of the footrest, so in the event of a spill bending the footrest the brake would not be damaged. The oil pump was inclined towards the rider and made simpler to use. The handlebars were redesigned for a more comfortable ride; moving the toolbags to the side of the carrier (this was before they were called racks) made more room for luggage. Even the rear stand was made easier to use. The British 500 single was evolving into a worldbeater.



Triumph’s well proven engine grew to 499cc

ELECTRIC HEADLIGHTS WERE BECOMING common but some riders had problems if they switched on the lights on the move. One manufactuer warned: “The metal □ðlaments are exceedingly brittle at the moment when the current is □ðrst switched on.” The tip was to stop the bike and let the lights warm up before proceeding.

THEAMERICAN-MADEJONESspeedodidn't lack for features: a long-term season' odometer, a trip odometer and a 'maximum speed' hand "giving absolutely indisputable evidence of the speed at the moment of resetting" to impress you mates. "The Jonesis accepted in Court as indisputable testimony in cases of arrest for speeding" (with a reset button to dispose of the evidence and protect the guilty).



TheJonesboasted all the features of a 21st century speedo (not that anyone knew that in 1909).

THEMANXMOTORCYCLISTSCLUBwasformed. As well as representing the 50 or so motor cyclists on the island, the club planned to look after visiting riders.

"A MOTORCYCLISTHASBEENFINED£5 and 5s 6d costs for exceeding the speed limit over a furlong trap in the Croydon ten mile limit. Such unfair treatment has already been commented upon suïiciently, and we think the only thing that motor cyclists can now do is to avoid Croydon altogether." And that remains sound advice to this very day.

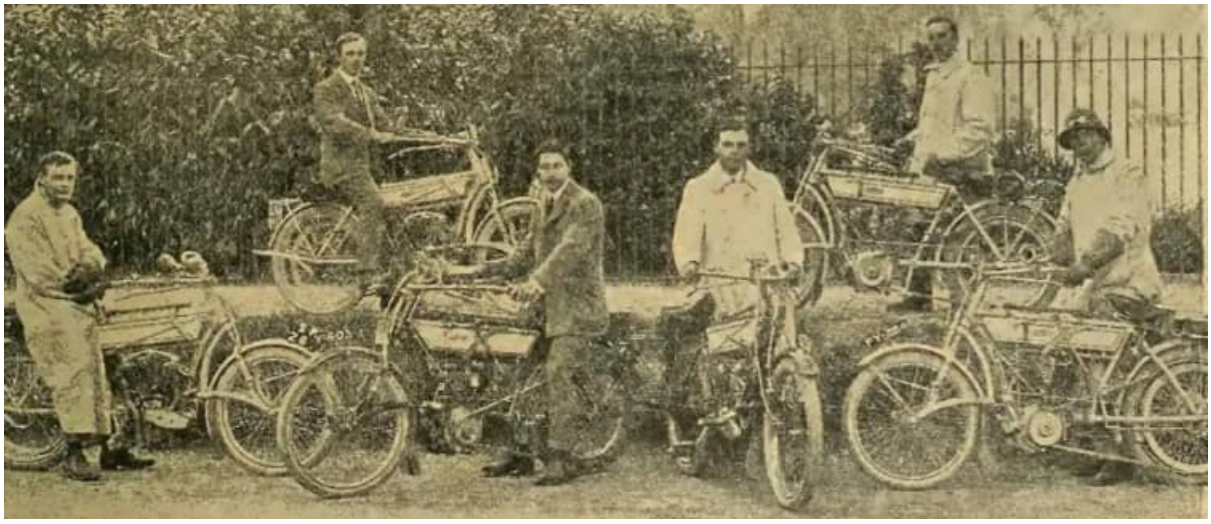
BIKECLUBSIN NEWSOUTHWales established their own Auto Cycle Union.

THEMOTOCLUB ARGENTINAhosted its □ðrstracemeeting on the outskirts of Flores with classes for motor cycles up to 3½hp and for all-comers. The □ðying-kilometrecoursewasbumpy and inches deep in dust. The □ðrst3½hpbikehome was a Humber, followed by a Peugeot, an Alcyon and two FNs. First past the post in the no-limit race was a 7hp Peugeot,followed by a 5hp Peugeot, another 7hp Peugeotand a 5hp Pierce.

AA Scouts were issued with rather smart uniforms (with black rubber capes for inclement weather)

A RIDER CHARGED WITH RIDING on the footpath in Winchburgh, near Edinburgh, was let oī with a 2/6d □ðne after the prosecution accepted the defendant's explanation that the road had potholes "deep enough to drown a dog in".

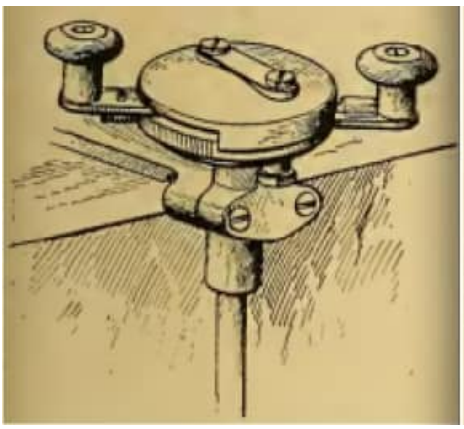
THE CAMBRIDGE UNIVERSITY MCC booked Brooklands and took on their Oxford counterparts in a 'battle of the blues', winning by seven points to six. The average club charged a few bob a year in subs; the CUMCC charged 15s a term. For this members' bikes were stored (and cleaned) by the Cambrian Automobile Co, and the club's rooms at the Prince of Wales Hotel was kept stocked with the motoring periodicals.

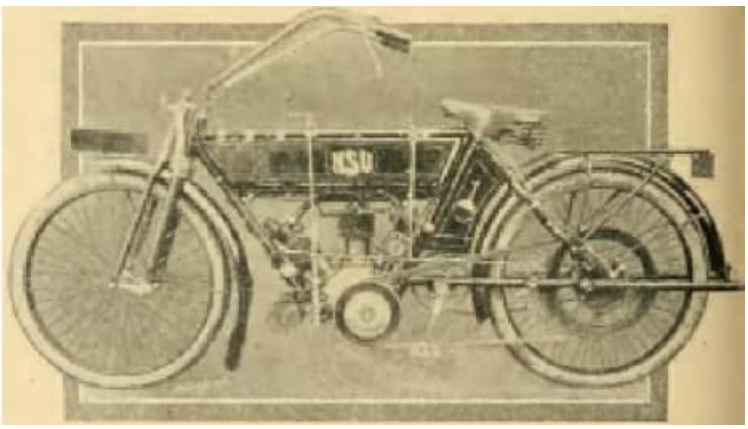


This is the Vindec section of the Cambridge University MCC

OVERSEASRIDERSTOURINGTHEUKwere required to re-register their machines, □ðtnew number plates and pay for an Inland Revenuelicence (VED).Asone pundit put it: “What encouragementfor foreign tourists to visit these shores?” British riders had similar problems when veturing abroad but later in the yearan international conference hosted by the French drew up plans for ‘international driving certi□ðcates’.ParliamentpassedTheMotor Cars (International Circulation) Bill to authorise the issue of the new licences and the □ðrstGBplates came into use.

THEREWERE55MOTORCYCLEexhibitors at the Stanley show (scattered among the bicycle stands) displaying 207 bikes. NSUshowed 18 of them, including a 4hp (546cc) twin with a new type of spring fork and gearedd own engine pulley which enabled almost-equal-sized belt pulleys to be used, reducing the risk of belt slippage. TheService Co, which imported a rangeof bikes and accessories, led on the 2½hp V-twin Wanderer, with sprung forks and an engine sprocket on an eccentric mount allowing belt adjustment on the move via a tank-top handle. Moto Revelightweights had won a reputation for durability in the long-distance trials; new to the rangewas a two-speed 297cc in-line vertical twin and a lady’s bicycle designedto be attached to a motor cycle via a ‘coupler’ and claimed to givethe passengera more comfortable ride than a standard bicycle. A year after it returned to the motor cycle market Humber’s well-□ðnished one-lunger was available with single- or two-speed transmission and with a choice of pedals or footrests.

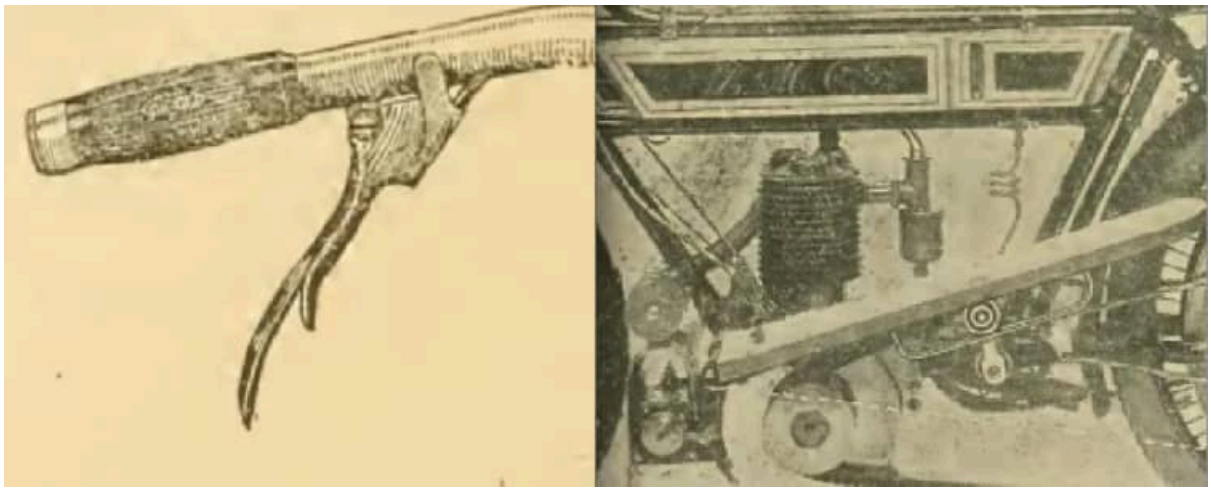




Not everyone □ðttedhandlebarcontrols; the Wanderer’stidy throttle-and-choke combo was still

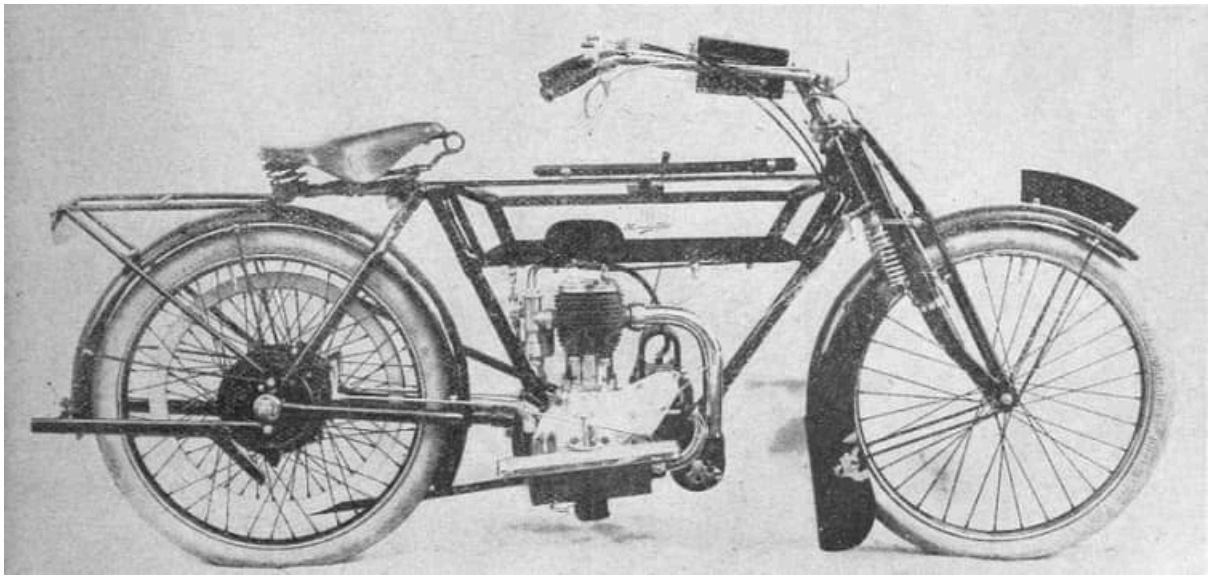
□ðrmlymountedonthe top tube. Right: TheNSU,now with a new type of sprung fork, was one of the most popular imports.

TheHumber's petrol tank came in two parts which enclosed the top tube; a step on the way to the saddle tanks which would arrive a couple of decades later. TheEn□ðeldCycleCocameup with a lightweight powered by a 2¼hpV-twin. Fully equipped for the road including front and rear stands and a Druid-type spring fork it weighed in at just over 100lb. Starting without pedalling or running alongside was clearly a Good Thing.Norton's 5hp twin oīered a hub clutch—Norton claimed the 725cc lump could be started "by a single thrust of the pedals while seated in the saddle, the machine being stationary". Scott made its show debut; a major point of interest was "a starting device which enables anyone to start with ease on any gradient" (the term 'kickstart' had yet to be coined). And the most striking feature of the LMC was a hinged footboard that doubled as a kickstart. AWWall, the brains behind the Rocrange—which, let it be noted, displayed what was



Bowden cables were all but ubiquitous; now they came up with a 'clean' handlebar with twistgrip and lever cables running inside the handlebar. Right: LMC's hinged footboard doubled as a kick (or stamp starter; the dotted line indicates its riding position.

(probably) the □ðrstpressed-steel'monococque'motor cycle frame–launched the 'Wall Auto-Wheel' which could be □ðttednexttothe rear wheel of a conventional bicycle to convert it into a motor cycle with a top speed of some 12mph. TheAuto Wheel, which weighed about 25lb, was a self-contained unit comprising an engine, magneto, carburettor, reduction gear, and fuel tank. It was described by one enthusiast at the Stanley Show as "the favourite exhibit with pedal cyclists, who gazedat it yearninglywith open mouths. If all the diīiculties concerned with the two-stroke design have been



Humber re-entered the motor cycle market with a conventional 3½hp model.

surmounted, we shall soon see thousands of these little wheels rolling push bicycles peacefully along the roads, and even if the two-stroke engine ends in failure as an application to motor cycling, I don't see why Mr. Wall should not □ðtafour-cycleengine to his patent wheel. Probably he has experimented with both, and knows what he is about." It was claimed to do 200mpg at an averageof 16nph. Mind you, the Auto-Wheel was not quite the innovation some pundits believed it to be. The Singermotor wheel dated back to 1901 and the 1905 Stanley show had been graced by a three-wheeler that bore a startling resemblance to Mr Wall's baby. In any case, the Auto-Wheel sowed the seeds for countless autocycles and mopeds and could thus be seen as the ancestor of the most successful vehicle of all time, the Honda Super Cub. There'sa thought. Mills-Fulford sidecars oīered enhanced passengercomfort with the introduction of coil-spring suspension, windscreens collapsible hoods and sprung chairs. And Chater Lea made sidecar □ðttingmore

WALL AUTO-WHEEL
Provides the long awaited connecting link between cyclists and motorists.
Fits every kind and every make of bicycle—ladies' and men's.
CYCLING MADE EASY.
FREE-WHEEL UP HILL.
PERFECT NON-SKID.

Thead says it all: Wall's Auto-wheel was the birth of the moped.

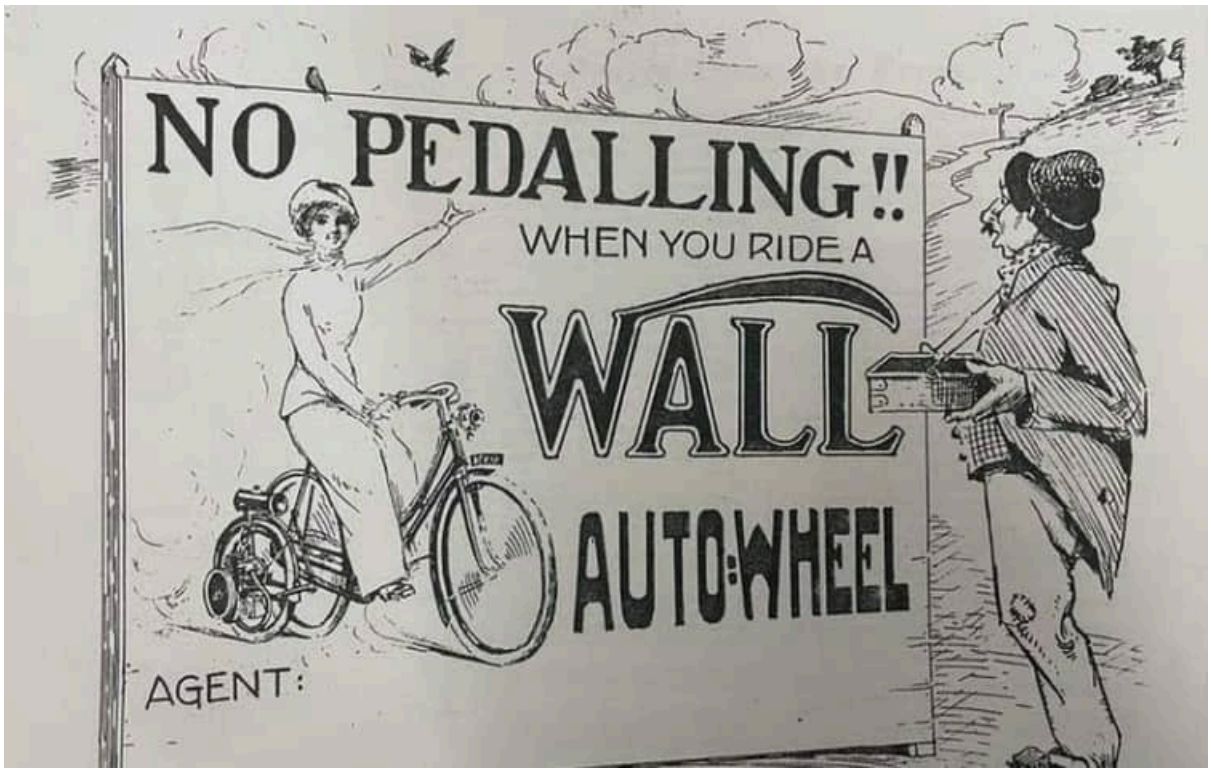
The‘X’ registration indicates that this Auto-Wheel was registered in Northumberland.

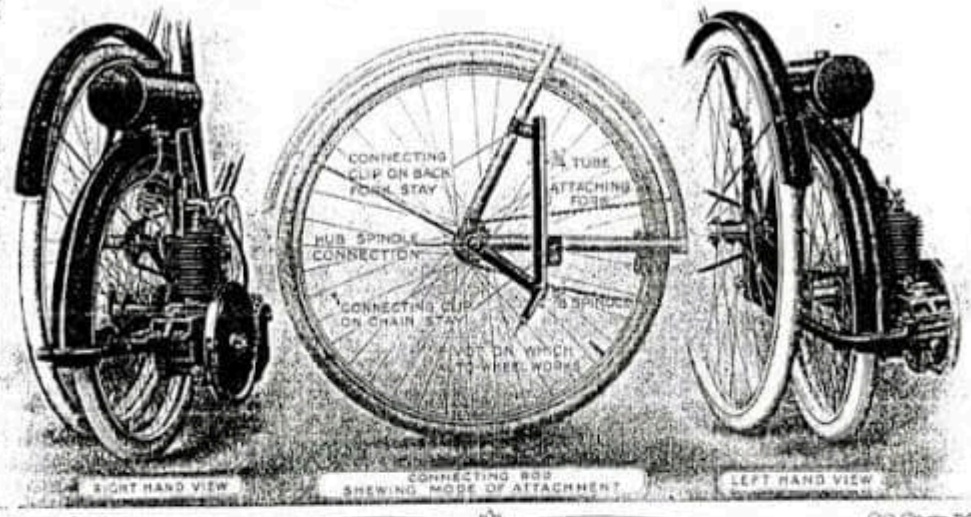
THE WALL AUTO-WHEEL
"Peace hath her victories
no less renown'd than War."
SCIENCE HAS ACHIEVED ANOTHER TRIUMPHANT VICTORY
BY SUBSTITUTING MECHANICAL IN PLACE OF MANUAL POWER IN THE PROPELLING OF CYCLES.

SEEING THE
SIGHTS
ON HIS
WALL
AUTO-
WHEEL

AU REVOIR!

Perfect
in Every
Part


NO PEDALLING!!
WHEN YOU RIDE A
WALL
AUTO-WHEEL
AGENT:


CONNECTING CLIP ON BACK FORK STAY
HUB SPINDLE CONNECTION
CONNECTING CLIP ON CHAIN STAY
RIGHT HAND VIEW
CONNECTING ROD SHEWING MODE OF ATTACHMENT
LEFT HAND VIEW

The Cyclists' Energy Saver.

THE Self-propelling Wall Auto-wheel is unquestionably the greatest labour-saving device which has ever been evolved for the benefit of cyclists. The whole attachment only weighs about 40 pounds, and can be fitted to, or removed from the rear wheel of a lady's or gentleman's cycle of any make within a few minutes. The mere touch of a lever starts the one horse-power petrol-driven motor and enables the rider to employ mechanical instead of muscular power when travelling at a high speed, cycling up inclines, negotiating "heavy" roads, or forging ahead against a very strong wind. If the rider so desires, extra power can be obtained when climbing very steep hills by pedalling lightly while the engine is in operation. In short, the Wall Auto-wheel makes it possible for cyclists of both sexes to travel long distances at sixteen miles an hour in any kind of weather without overtaxing their physical powers.

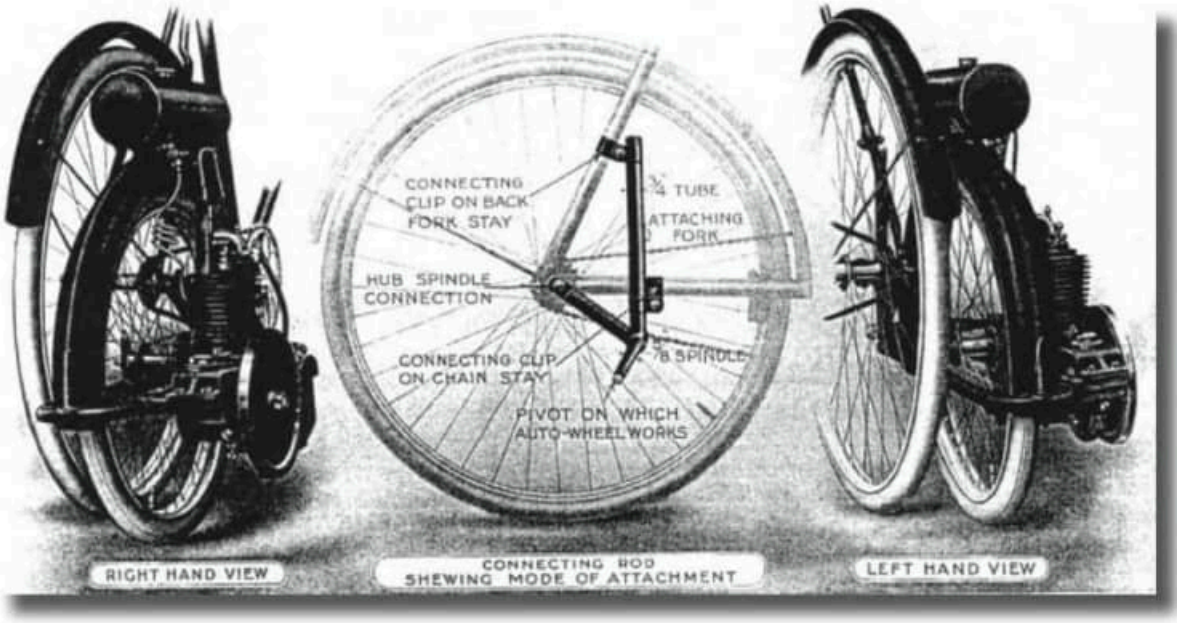
A full technical description of the Wall Auto-wheel is given on pages 4 to 7. Any further particulars that may be required will be sent immediately on application to

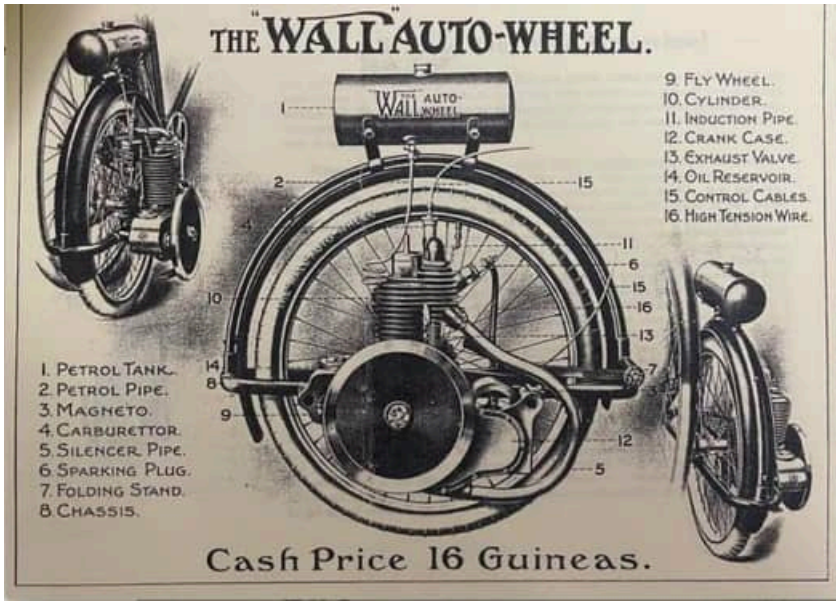
AUTO-WHEELS, LIMITED,

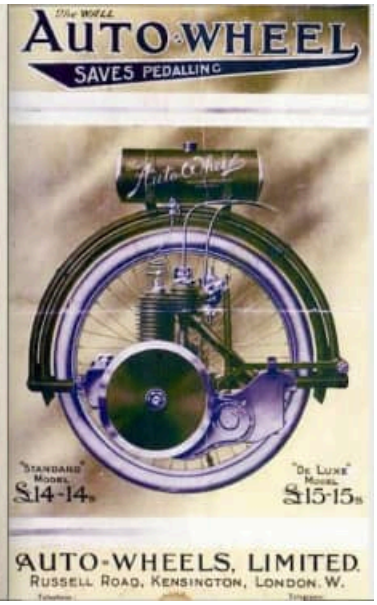
Telephone: No. 3883 Western.

Russell Road, Kensington, London, W.

Telegrams: "Autowheel, Hyde, London."


CONNECTING CLIP ON BACK FORK STAY
¾ TUBE
ATTACHING FORK
HUB SPINDLE CONNECTION
CONNECTING CLIP ON CHAIN STAY
⅞ SPINDLE
PIVOT ON WHICH AUTO-WHEEL WORKS
RIGHT HAND VIEW
CONNECTING ROD SHEWING MODE OF ATTACHMENT
LEFT HAND VIEW


THE "WALL" AUTO-WHEEL.
1. Petrol Tank.
2. Petrol Pipe.
3. Magneto.
4. Carburettor.
5. Silencer Pipe.
6. Sparking Plug.
7. Folding Stand.
8. Chassis.
9. Fly Wheel.
10. Cylinder.
11. Induction Pipe.
12. Crank Case.
13. Exhaust Valve.
14. Oil Reservoir.
15. Control Cables.
16. High Tension Wire.
Cash Price 16 Guineas.


The WALL
AUTO-WHEEL
SAVES PEDALLING
"Standard" Model £14-14s
"De Luxe" Model £15-15s
AUTO-WHEELS, LIMITED
Russell Road, Kensington, London, W.

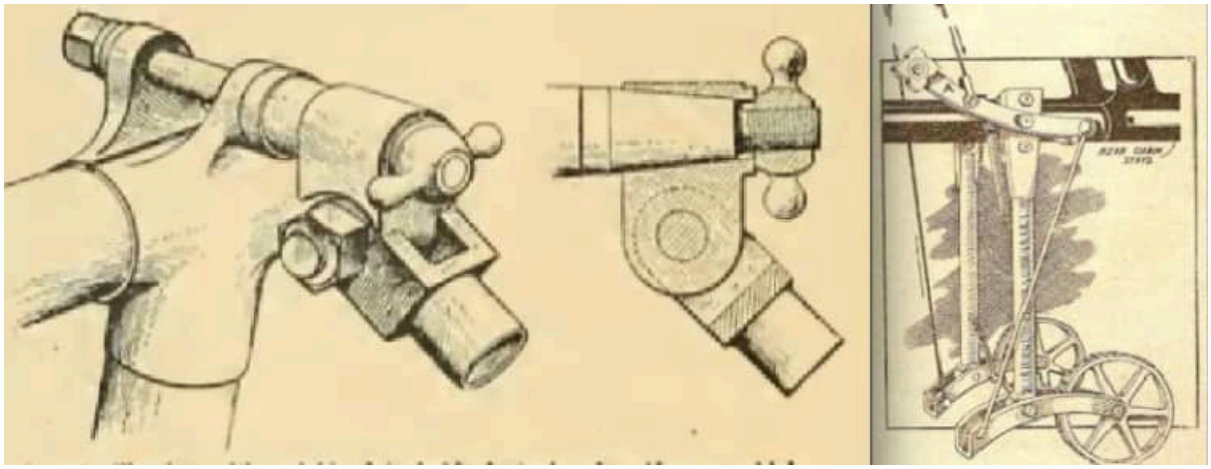
The possibilities of the Wall Auto-Wheel clearly tickled this cartoonist's fancy. This was captioned: "A typical scene in the park." Oddly enough, a few years later there really was a powered perambulator, as you'll see if you keep reading.

…while this one was captioned: "A typical scene in the street."

This survivor is still running on the Isle of Wight.

convenient with a seat pillar lug incorporating a QD □ðtting(the□ðrstframeswereappearingwith the integral sidecar lugs that would become ubiquitous for more than half a century). Among the accessories at the Stanley show were a 'weather screen' in the form of a triangular roller blind mounted on the handlebars and clipping onto the front-wheel spindle. Rathermore exotic was a 'diathermanous' engine cooling system using rock salt, which was claimed to be more eīective than air or water. From AMAC, later to become part of the AMALcarburettor company, came a

tidy handlebar-mounted advance/retard lever and a "spare petrol tap…Thetapin the central position communicates only with the raised pipe which sticks up some little way in the tank. When the □ðowfromthissources ceases, the rider knows he has about an inch of spirit left, and then turns the tap to the right and drains the last dregsfrom the tank, for the tap now communicates with the tiny hole which is □ðushwiththebottom of the petrol tank. Thetap can also be turned completely oī, and is automatically locked by a small stop in the two extreme positions, while a spring washer also prevents it from moving when not desired. It has the advantage of givingwarning to the rider when his petrol supply is getting low, for he knows that when he has to tap his reservesupply he can only do some 10 to 12 miles on the contents of his tank. We understand that severalprominent manufacturers are taking up this novel little □ðtment."Andin the 21st century few bikes are □ðttedwithreserve taps. That's progress that is. Lycett, a household name in saddles, came up with the Fit-out: a large case that strapped to the carrier with panniers hung oī



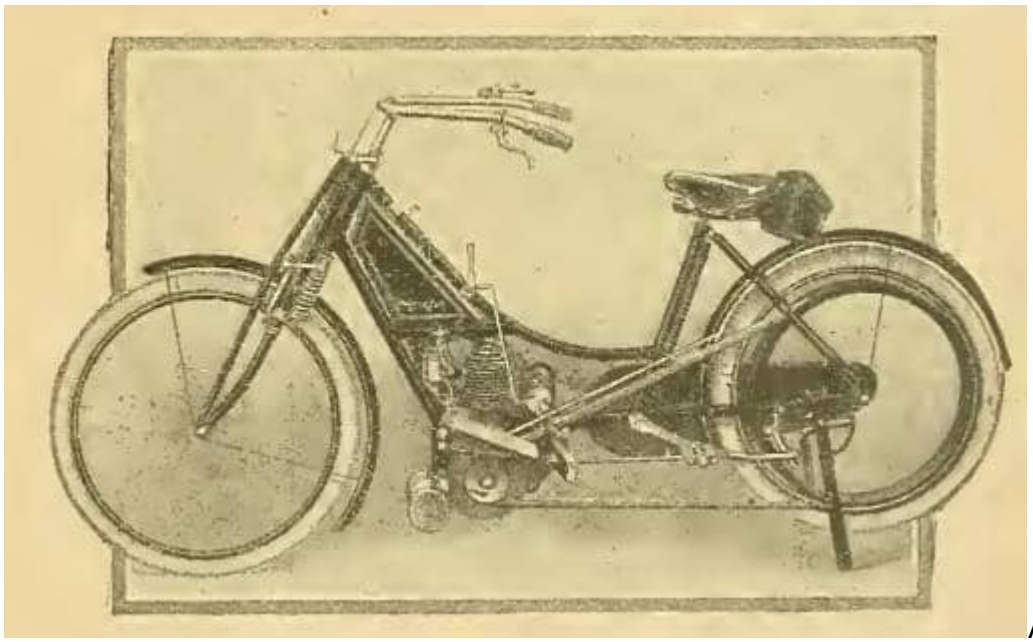
Chater Lea designed a QD sidecar □ðtting.Right:TheJack-no-skid comprised two forks attached to the frame tubes ending into small wheels.

the sides, made in "waterproof tweed and leather" and setting the pattern for the later topbox and panniers. Also among the accessories was the Ukantes motor cycle prop, "a single leg fastened to a quadrant and bracket, the latter attaching to the back stay of the frame…inno sense a stand, but merely an auxiliary means of allowing the machine to stand by itself with a minimum of trouble." A propstand in 1909. Who knew? TheJack-no-skid comprised two forks attached to the frame tubes endinginto small wheels. Pulling a lever lowered the wheels which, in theory would stop a skid. At full extension the forks served as a stand. It was patented because there were similar devices on the market catering to the cowardy-custards who would now ride trikes. Theseincluded Barsby's Patent Safety Footboards: "Several correspondents recently havementioned the desirability of havingmeans to enable the rider to keep the machine upright without the necessity of putting one's feet in the mud. Barsby'sdevice achievesthis, and considerably more, as, if combined with a clutch, it enables a motorcycle to be driven anywhere and under any condition of road or weather, exactly like a motorcar. It is so arrangedthat when the right footboard is depressed, the clutch is withdrawn, and the machine can remain stationery with the enginestill running. By a particular adjustment of the clutch lever, it can be left so that when the footboard is down, the clutch is not quite free, but is acting as a slight brake on the engine to prevent it racing. Thedevice also makes a very good stand. When the rider stops, he can engagetwo catches, which keep the boards down and allow the rider to dismount and leave the machine upright. Handle starting from the bottom bracket is provided for, and the device can be □ðttedbyanyoneto any machine, as there are only two clips

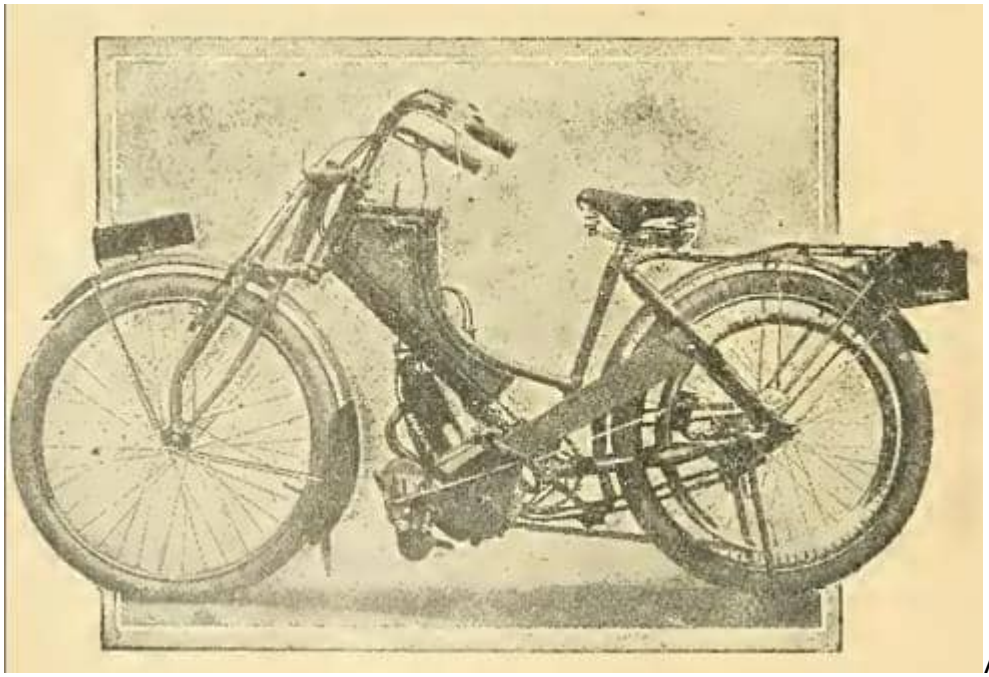
to □ðx.Absoluteimmunityfrom sideslip under any conditions is claimed by the inventor, Mr W Barsby, 6 Cecil Court, Charing Cross Road, WC. The machine has been ridden on the London streets for the past 12 months, with full satisfaction." And in conclusion, Ixion opined: "Spring frames are on exhibition, but personally I greatly doubt whether there is any real need to spring the whole weight of the machine and rider." Yes, major British manufacturers were still turning out rigid frames 40 years later but that's nothing to be proud of.

THE SCOTT
Two Stroke, Two-speed Gear, Free Engine, Water-cooled, Perfect Spring Fork, Self-starting Chain Drive.
The "All-weather" Machine
Remember the "Scott" is not an ordinary motor bicycle with improvements introduced—IT IS simply one huge improvement throughout.

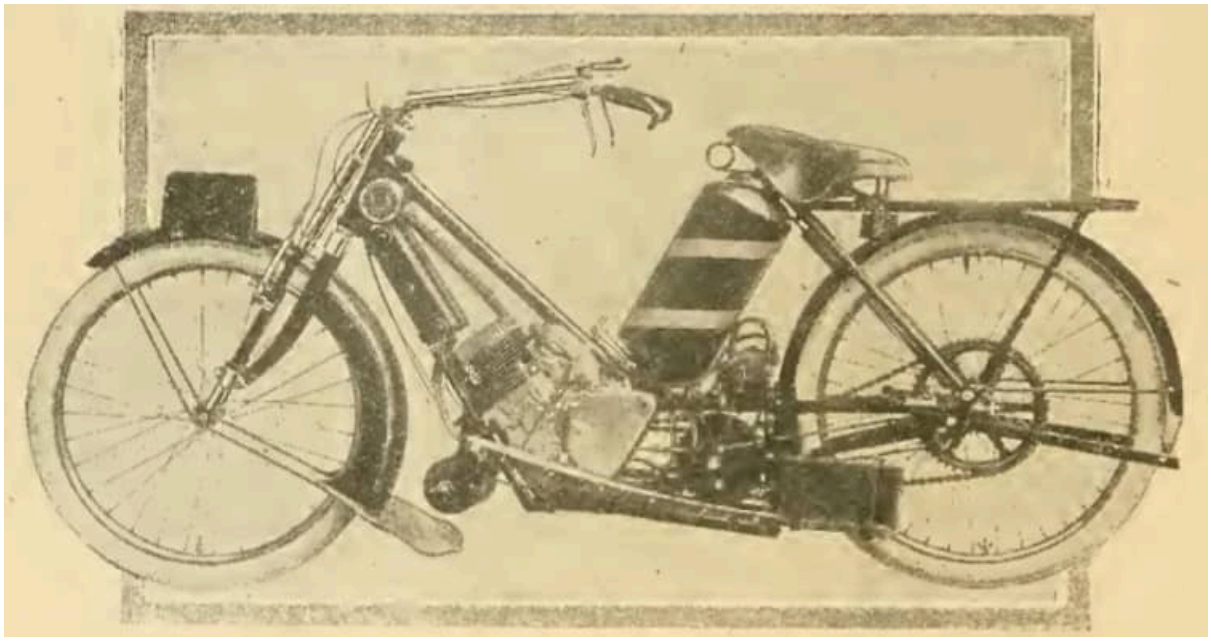
Thetwo-stroke, two-cylinder, two-speed Scott made its show debut. One pundit remarked: "There is an irresistible fascination about this cleverly-designed machine."



A Norton for ladies

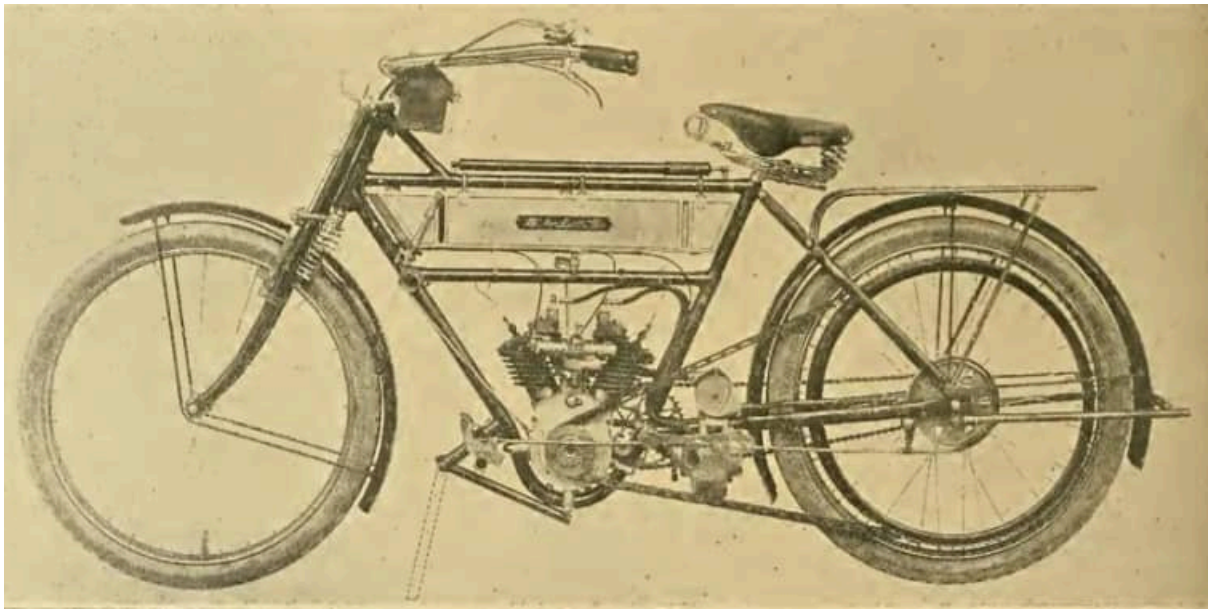


A Matchless for ladies.

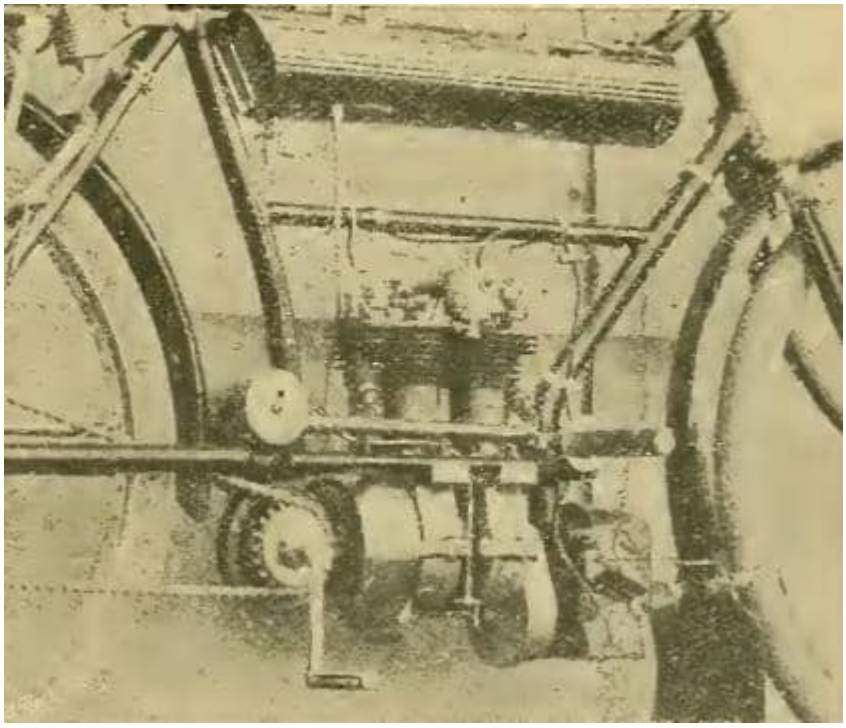


Great Scott!

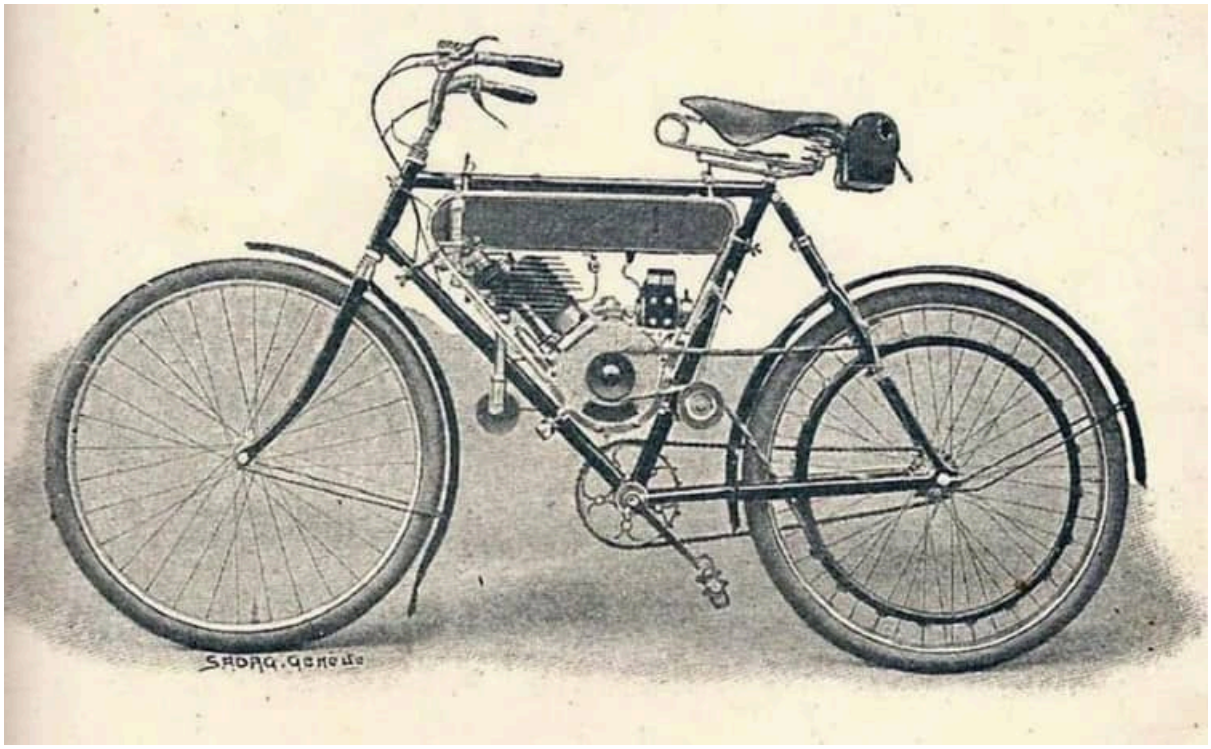
A new generation of lightweights appeared with two major improvements over their predeccesors: reliable transmissions and increased accessibility for maintenance; not least doing away withtaking the engine out for even minor tasks. The new P&M was generally seen as cream of the crop. It was slightly heavier than most imported lightweights (as was true of its compatriots) but could outperform them, both on the □ðatandonthehills. However the Motosacoche and Moto-Reve had already proved themselves and both had been further improved. The Wanderer and FN were also well thought of; on the homefront the P&M had support from the new En□ðeldtwinandestablished tiddlers from Chater Lea, Hobart, Grandex and Wolf.



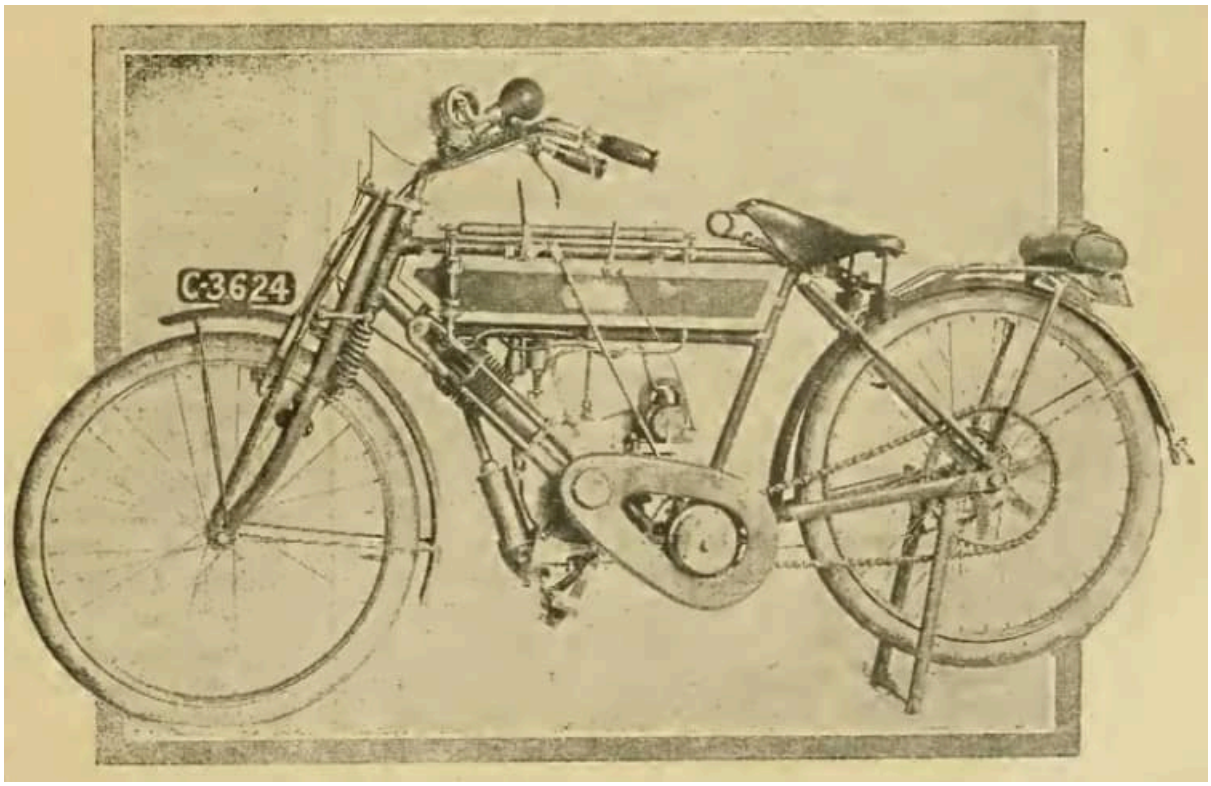
En□ðeldlightweight V-twin.



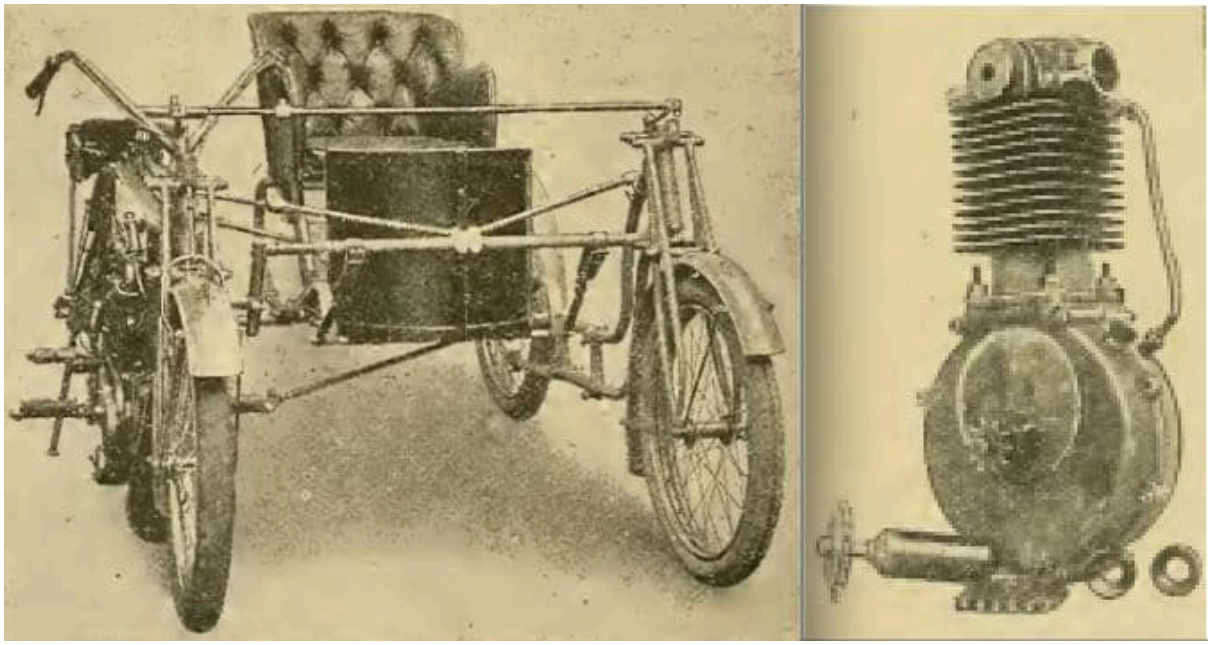
Moto Revevertical twin.



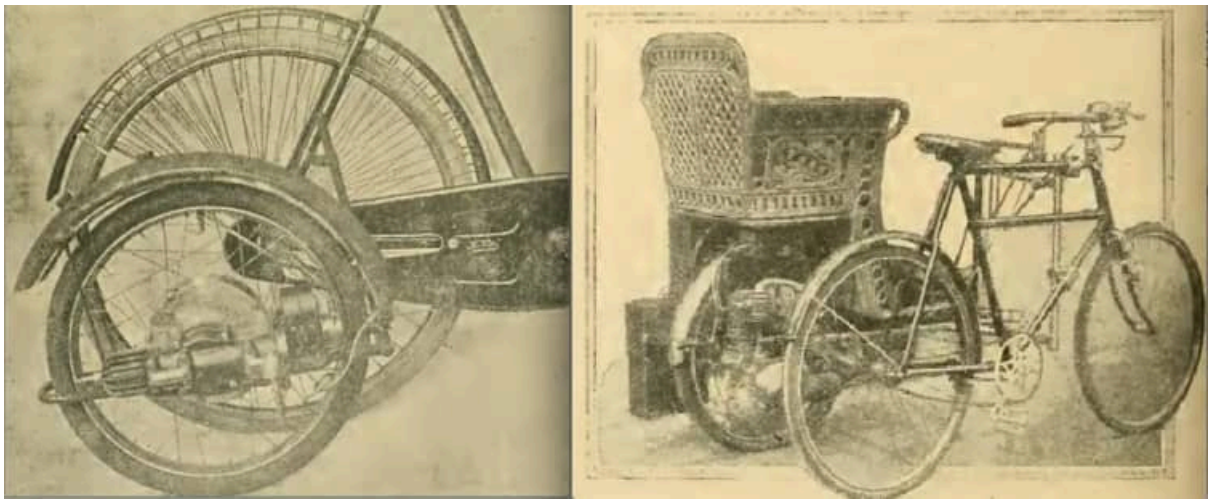
Motosacoche Type M: a well developed Swiss lightweight.



P&M came up with a lightweight that was the cream of the crop.



The Lowenhaul 'two-wheel sidecar' pictured here on the latest Rex 7hp twin, turned out to be a blind alley, but didn't lack style. Right: Those clever chaps at Rex built a rotary-valve engine.



Wall Auto-wheel: steady as a Roc. Right: This Stanley show exhibit from 1905 bears more than a passing resemblance to the Wall Auto-Wheel.

A COLUMNIST IN THE MORNING LEADER gave his view of the Stanley Show: "There were people there who ride these things, in idleness, about the country. Most of them were weakly made, and stooped, and had strained, unhealthy faces. Only a few looked as if they should be any good at a game of football, or as if they could ride a horse. There was nothing to show that they were English, and they might just as well have been French."

AN RAC SURVEY SHOWED THERE were 75,000 motor cycles registered in the UK, up from 65,026 in 1908, 53,877 in 1907, 45,735 in 1906, 34,706 in 1905 and 21,521 in 1904, the □ðrst year such □ðgures were published.

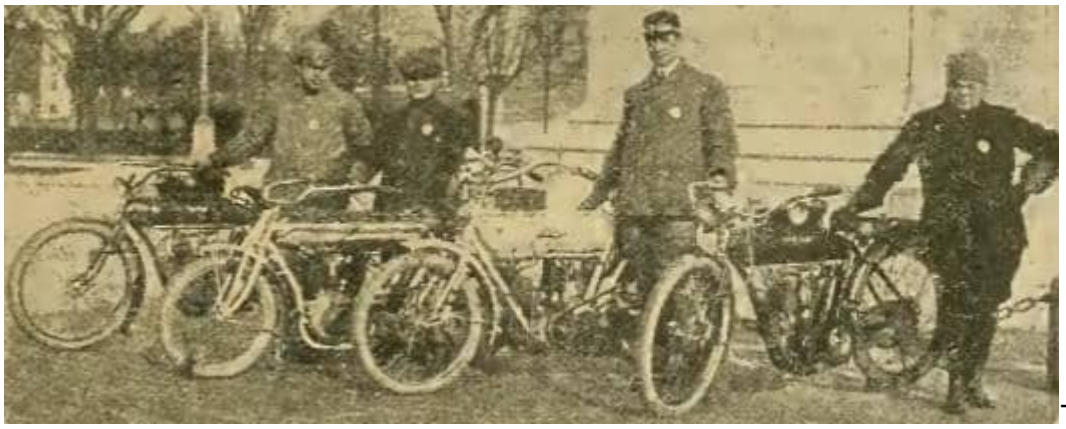
THE US STATES TYPICALLY ENFORCED speed limits of 8-15mph in urban areas and 20-25mph in the countryside. However, Arkansas, Georgia, Idaho, Maryland, Mississippi, Montana, Oklahoma and West Virginia and Wyoming had simply ignored motorcycles: no registration system, no licence and no speed limit. The Federation of American Motorcyclists's legal committee

published suggestionsfor ‘ideal’ motor cycle regulations including a 30mph speed limit and allowing a rider from one state to ride in another state for up to sevendays.

A SPECIALMEETINGOFTHECycleand Motor Trades’ Association resolved “that the motor cycle, cycle, and accessory manufacturers and traders should combine with a view to holding a show next yearat Olympia, and that a committee should be appointed to discuss the matter with the Society of Motor Manufacturers and Traders”.

THEUS GOVERNMENTSTAGEDACOMPARATIVEbraketest between a horse and a motor cycle. Theyestablished that a skilled cavalryman could bring his horse to a standstill in 162ft from 25mph; a motor cyclist could stop in 147 feet.

DECADESBEFORETHEMETROPOLITANpoliceset up the Sweeney, Sheriī Alfred T Hobley in King’s County, California recruited a ‘□ðyingsquadron’offour motor cyclists. Theidea was proposed by TKHastings, vice-president of the Federationof American Motorcyclists. “In the eventof an emergencyone of the motor cyclists is pressed in service, and dashes oī on his motor cycle to ful□ðllanyorder.If the sheriī requires a paper served in a hurry, the members of the squad are ready and willing to travel any distance for him. It is expected that sheriīs of other counties will follow the exampleof Sheriī Hobley, who, by the way, will recommend Sheriī - elect Quinn to reappoint the squad special deputy sheriīs, when the former vacateshis oīice on December 31st.”



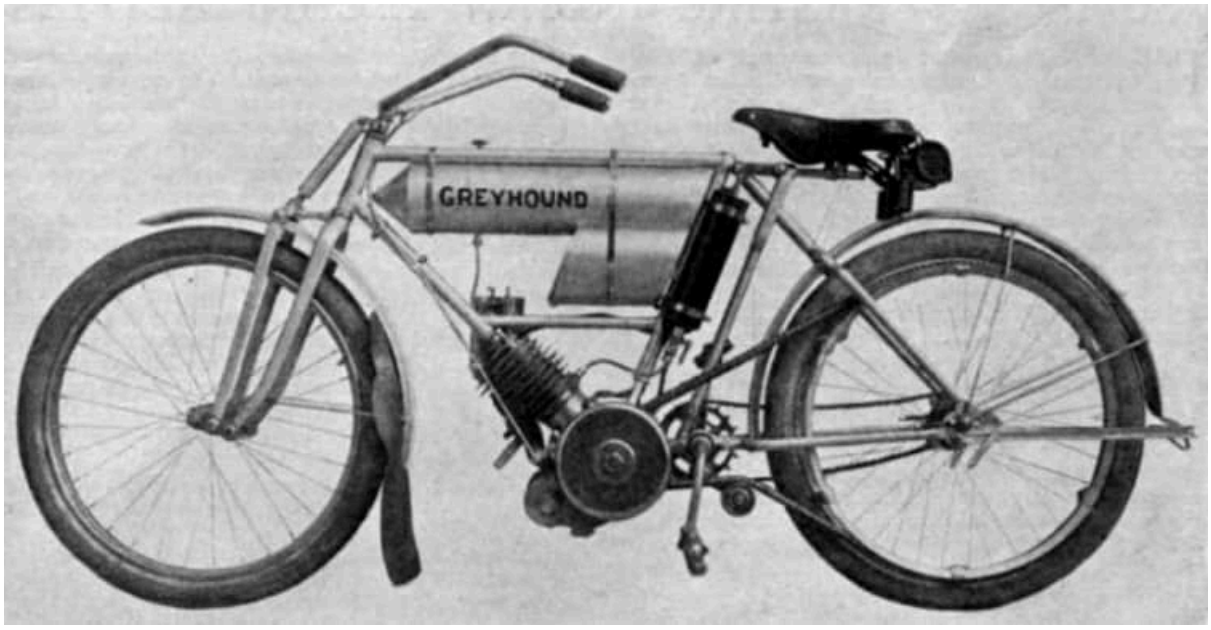
The Californian □ðyingsquadron(leftto right): TKHastings (chief)…well, he would be wouldn’t he? (Indian); JBFrench (Peugeot); JCFawcett (NSU)and FH Chase (Indian).

TheNewark, New Jerseypolice re-equipped with new Reading-Standardsafter the marque had proved itself with several years’ reliable service.

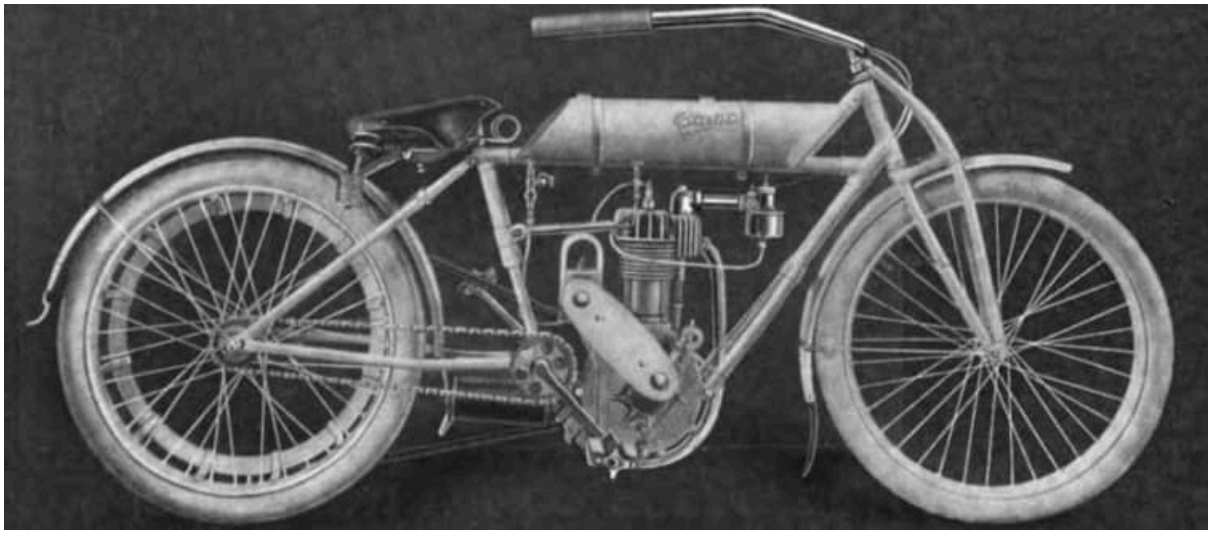
HENDEEMFGCO ORDERED100,000ft (nearly 19 miles) of drive chain from Hans Renold. Brookes was supplying Hendee with saddles, another British □ðormhadreceivedorders for some 30,000 valves and a major order for tubing was in the pipeline. Thisdespite the fact that

American importers had to stump up a 45% import tariī. "Taking it all together," the Blue 'Un suggested, "there will be very little of the material in the machine apart from the engine which is not of British production, so even the most patriotic motor cyclists will join us in applauding the Hendee Co for its □ðrstyear'ssuccess in England."

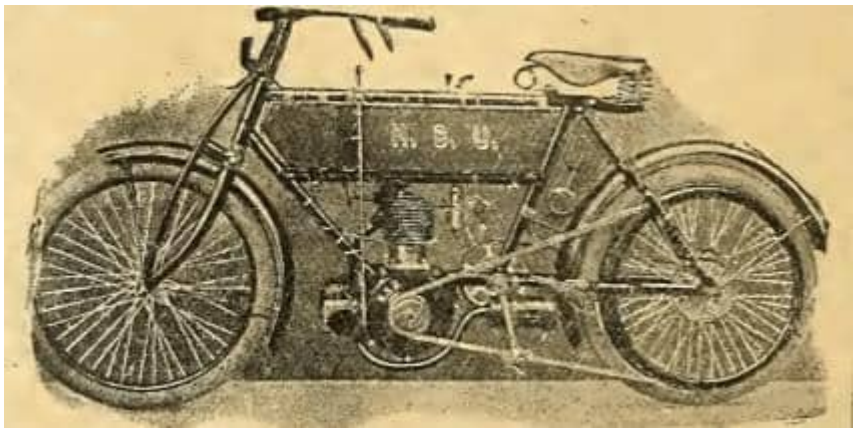
THE US MAGAZINE MOTORCYCLE ILLUSTRATED published a list of 257 makes of motor cycle with their countries of origin. The author was Miss M Low of 23 College St, Homerton, in the East End of London. Her address corresponds to a pub, the Princess Alice, and a contemporary census shows Walter J Low resident as a 'beer retailer'; presumably her dad. Why did a publican's daughter have such a wide knowledge of motor cycles? Well, she shared a surname with one Archibald Low who would have been 21 when Miss Low was compiling her list and might have been a cousin or uncle. It's safe to say he knew a bit about bikes; in a long and extremely eventful career he would design his own motor cycle, race at Brooklands and spend 24 years as chairman of the ACU (qv gallimaufry). In any case, here's Miss Low's list, with abbreviations (A), American; (AU), Austrian; (B), Belgian; (D), Dutch; (E), English; (F), French; (G), German;



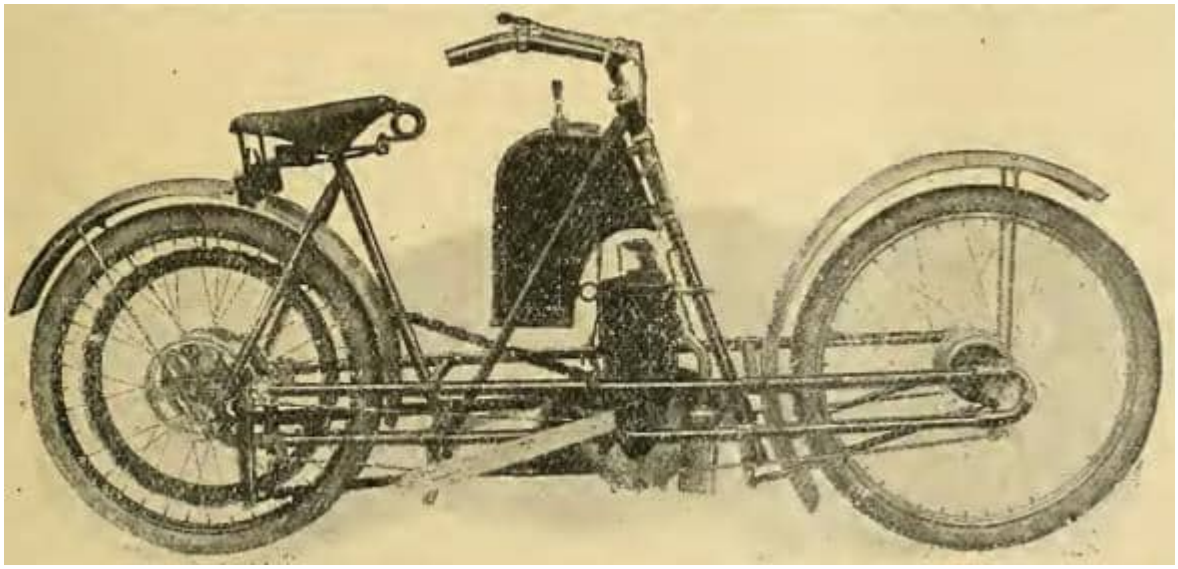
(RU), Russian; (U), Unknown): AC (E), Acacia (E), Acme, (E), Adler (G), Advance (E), Alcyon (F), Alldays (E), American (A), Anglian (E), Antoine (B), Apache (A), Armac (A), Ariel (E), Arno (E), Armadale (E), Aster (F), Atelier (F), Auto-Bi (A), Auto-Fanteuil (F), Autooto (F), Baddeley (E), Barnes (E), Barry (E), Baxter (E), Bat (E), Benktink (E), Bercley (E), Bichrone (E), Bid (A), Binks (E), Blizzard (E), Bowden (E), Bradbury (E), Bradley (A), Brannabas (G), Branson (A), Bren (A), Brooklands (E), Brough (E), Brown (B), Californian (A), Caldert (E), Campion (E), Carlton (E), Certain (E), Chappell (A), Chater-Lea (E), Chase (E), CCR (U), CIE (E), Clarendon (E), Clement (E), Clement Garrard (E), Clessold (E), Clyde (E), Comet (E), Corah (E), Cotterean (E), Coventry Eagle (E), Crouch (A), Crown□ðeld(E), Curtiss (A), CVS (A), Daw (E), Daymar (E), DEC (E), De Dion (F), Derby (E), Diamond (E), Dot (E), Douglas (E), Durkopf (G), Durwent (E), Duc (E), Eddie (E), EDF (A), Eland (E), Elf Kink (E), Elgin (A), Emblem (D), Eole (A), Erie (A), Excelsior (A), Eyesink (D), Fairy (E), Feilback (A) Fleetwing (E), FN (Belgian), Gamage (E), GB (G), GOK (E), Gobron Minerva (F), Goricke (A), Green Egg (A),



Greyhound (A), Griīon (F), Guarantee (U), Hadlef (E), Harley Davidson (A), Herlte Bruneau (F), Hewittson (E), HH (U), Hilaman (A), Hobart (E), Holdert (E), Holley Auto-Bike (RU), Hopper (E), Hornecker (A), Hulbert Bramlead (E), Humber (E), Indian (A), Invicta (E), Ivel (E), Jones (E), JAP (E), Jehle (U), Jehu (F), Jowett (E), Juno (E), KD (F), Kelecom (B), Kerry (E), Kynoch (E), Lagonda (E), Lanadere (F), Langham (E), Laurin & Klement (Au), Lazarus (U), Leader (E), Light (A), Licoln Elk (E), Linden (U), LMC (E), Lurquin Coudert (AU), MAB (E), Mabon (E), Madison (A), Magnet (G), Mans□ðeld(E), Munson (A),

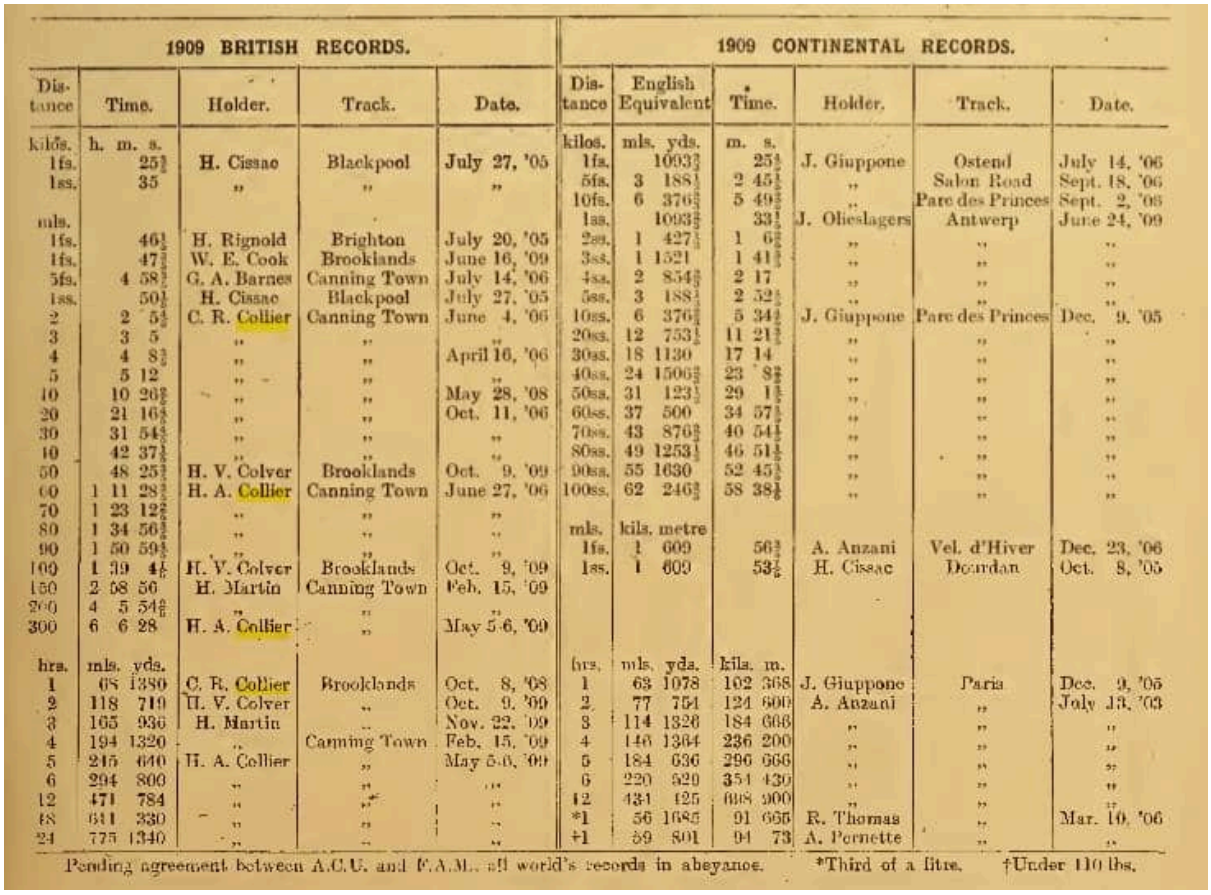


Marlborough (E), Mars (G), Marsh (A), Matchless (E), Max (E), Metz (A), Merkel (A), Midget Bicar (A), Minerva (B), Minneapolis (A), Mitchell (A), MM (A), MMC (E), Montgomery (E), Moorhampton (E), Motor Reve (F), Motosachoche (F), New Century (E), New Era (A), New Hudson (E), Noble (E), NLG (E), Norton (E), NSU (G), Oakleight (E), Onaway (U), Orient (A), Ormonde (F), Ortona (A), Osborne (E), Osmonde (E), Pace (E), Pebok (E), Peiper (B), Peugeot (F), Phanoman (B), Phelon & Moore (E), Phoenix (E), Pioneer (E), Pierce (A), Precision (E), Premier (E), Princeps (E), Progress (B), Puch (A), Pumbret (E), Quadrant (E), Raleigh (E), Rambler (A), R&P (E), Regina (E), Reliance (A), Rex (E), Relief (E), Rip (E), Roc (E), Romania (B), Rover (E), Royal (A), Royal Ajax (E), Royal Consort (E), Royal En□ðeld(E), RoyalPioneer (A), Royal Sovereign (E), Rushworth (E), Reading Standard (A), Sarolea (B), Scott (E), Scout (E), Service (E), Sharp (E), Shaw (E), Silver (E), Simms (E), Simplex (A), Sinclair (E), Singer (E), Sprinter (E), Star (E), Starlet (E), Stevens (A), Styria (A), Swallow (E), Swift (E), The King (Cambridge) (E), Thomas Auto-Bi (A), Thomas (E), Thiem (A), Thor (A), Thoroughbred (A), Torpedo (A), Trafalgar (E), Triumph (E), Trump-JAP (E), Vinco Minerva (E), Vindec (E), VS (E), Waddington (E), Wagner (A), Wallace (E), Weller (E), Werner (F), West□ðeld(E),



Westlake (E), Whitley (E), Wolf (E), Yale (A), Zedel (B), Zenith (E), Zenette (E). Whoever advised her, Miss Low's list is very far indeed from perfect. anderer, for example, was listed as Russian rather than German (perhaps she wrote 'Prussian' and a geographically challenged Yankee copy editor became confused). Then there was 'Pugh (RU)' which, allowing for a typo in the name, translates as Puch (G). The □ðne German marque NSU was described as Belgian. Among marques simply omitted, some of them high pro□ðle, were Regal (E), OK Supreme (E), Oreol (F) whose main factory rider Cissac set oodles of records, Orion (Czech), Olympic (E), OEC (E), Opel (G), Austral (F), Victoria (Scotland), Victoria (G), Vibratelle (F), Vulcan (Czech), Walter (Czech) and Rene-Gillet (F). Rambler, classi□ðed (U) was American, so that Yankee copy editor was having a bad day, and AJS (E) which had only just been launched so let's make allowances. On the other hand, Ormonde (F) was listed three years after its demise.

THE BLUE 'UN PUBLISHED A de□ðnitive table of 1909 records in January 1910 but it makes sense to include them here:



1909 BRITISH RECORDS.

Distance	Time.	Holder.	Track.	Date.
kilos.	h. m. s.			
1fs.	25⅘	H. Cissac	Blackpool	July 27, '05
1ss.	35	,,	,,	,,
mls.				
1fs.	46⅕	H. Rignold	Brighton	July 20, '05
1fs.	47⅗	W. E. Cook	Brooklands	June 16, '09
5fs.	4 58⅖	G. A. Barnes	Canning Town	July 14, '06
1ss.	50⅕	H. Cissac	Blackpool	July 27, '05
2	2 5⅘	C. R. Collier	Canning Town	June 4, '06
3	3 5	,,	,,	,,
4	4 8⅗	,,	,,	April 16, '06
5	5 12	,,	,,	,,
10	10 26⅘	,,	,,	May 28, '08
20	21 16⅘	,,	,,	Oct. 11, '06
30	31 54⅘	,,	,,	,,
40	42 37⅕	,,	,,	,,
50	48 25⅗	H. V. Colver	Brooklands	Oct. 9, '09
60	1 11 28⅗	H. A. Collier	Canning Town	June 27, '06
70	1 23 12⅘	,,	,,	,,
80	1 34 56⅗	,,	,,	,,
90	1 50 59⅗	,,	,,	,,
100	1 39 4⅘	H. V. Colver	Brooklands	Oct. 9, '09
150	2 58 56	H. Martin	Canning Town	Feb. 15, '09
200	4 5 54⅘	,,	,,	,,
300	6 6 28	H. A. Collier	,,	May 5-6, '09
hrs.	mls. yds.			
1	68 1380	C. R. Collier	Brooklands	Oct. 8, '08
2	118 719	H. V. Colver	,,	Oct. 9, '09
3	165 936	H. Martin	,,	Nov. 22, '09
4	194 1320	,,	Canning Town	Feb. 15, '09
5	245 440	H. A. Collier	,,	May 5-6, '09
6	294 800	,,	,,	,,
12	471 784	,,	,,	,,
18	611 330	,,	,,	,,
24	775 1340	,,	,,	,,

1909 CONTINENTAL RECORDS.

Distance	English Equivalent	Time.	Holder.	Track.	Date.
kilos.	mls. yds.	m. s.			
1fs.	1093⅔	25⅕	J. Giuppone	Ostend	July 14, '06
5fs.	3 188⅓	2 45⅕	,,	Salon Road	Sept. 18, '06
10fs.	6 376⅔	5 49⅗	,,	Parc des Princes	Sept. 2, '06
1ss.	1093⅔	33⅕	J. Olieslagers	Antwerp	June 24, '09
2ss.	1 427⅓	1 6⅗	,,	,,	,,
3ss.	1 1521	1 41⅗	,,	,,	,,
4ss.	2 854⅔	2 17	,,	,,	,,
5ss.	3 188⅓	2 52⅕	,,	,,	,,
10ss.	6 376⅔	5 34⅕	J. Giuppone	Parc des Princes	Dec. 9, '05
20ss.	12 753⅓	11 21⅗	,,	,,	,,
30ss.	18 1130	17 14	,,	,,	,,
40ss.	24 1506⅔	23 8⅗	,,	,,	,,
50ss.	31 123⅓	29 1⅗	,,	,,	,,
60ss.	37 500	34 57⅗	,,	,,	,,
70ss.	43 876⅔	40 54⅕	,,	,,	,,
80ss.	49 1253⅓	46 51⅕	,,	,,	,,
90ss.	55 1630	52 45⅗	,,	,,	,,
100ss.	62 246⅔	58 38⅕	,,	,,	,,
mls.	kils. metre				
1fs.	1 609	56⅗	A. Anzani	Vel. d'Hiver	Dec. 23, '06
1ss.	1 609	53⅘	H. Cissac	Dourdan	Oct. 8, '05
hrs.	mls. yds.	kils. m.			
1	63 1078	102 368	J. Giuppone	Paris	Dec. 9, '05
2	77 754	124 600	A. Anzani	,,	July 13, '03
3	114 1326	184 666	,,	,,	,,
4	146 1364	236 200	,,	,,	,,
5	184 636	296 666	,,	,,	,,
6	220 520	354 430	,,	,,	,,
12	431 425	688 900	,,	,,	,,
*1	56 1685	91 655	R. Thomas	,,	Mar. 10, '06
†1	59 801	94 73	A. Pernette	,,	,,

Pending agreement between A.C.U. and F.A.M., all world's records in abeyance. *Third of a litre. †Under 110 lbs.

"BELOW IS A LIST OF MOTOR cycle records accepted by the Federation of American Motor Cyclists (the governing body of the pastime in America). It will be noticed that our American cousins have a separate list of 'amateur records', but we may explain that the American amateur de□ðnition is very diīerent from the English one. A trade rider is an amateur in America, provided he has never competed for a cash prize. We are assured by Dr JP Thomley (chairman of the FAM Competition Committee) that 'the records have been made with the greatest care and under the strictest supervision'. He adds: 'There are no records in the world which have been more carefully gotten up, and every possible factor of error eliminated. It gives me great pleasure to forward this list to you, and the Federation of American Motor Cyclists will greatly appreciate your publishing these records in your valuable journal.'"

AMATEUR RECORDS.

Distance.	Holder.	Where made.	Date.	Time.
			1909.	h. m. s.
1 kilo	C. Spencer..	Springfield, Mass.	Oct. 23	0 28⅘
*1 kilo	C. Gustafson	Springfield, Mass.	Oct. 23	0 39
*1 mile	C. Spencer..	Springfield, Mass.	Oct. 23	0 55⅕
1 mile	Fred Huyck	Springfield, Mass.	July 31	0 42⅗
2 miles	Fred Huyck	Springfield, Mass.	July 31	1 27⅘
3 miles	Fred Huyck	Springfield, Mass.	July 31	2 12
4 miles	Fred Huyck	Springfield, Mass.	July 31	2 55⅕
5 miles	Fred Huyck	Springfield, Mass.	July 31	3 40⅕
6 miles	Fred Huyck	Springfield, Mass.	July 31	4 38⅖
7 miles	Fred Huyck	Springfield, Mass.	July 31	5 24⅖
8 miles	Fred Huyck	Springfield, Mass.	July 31	6 9⅘
9 miles	Fred Huyck	Springfield, Mass.	July 31	6 55⅕
10 miles	Fred Huyck	Springfield, Mass.	Sept. 6	7 42⅕
11 miles	Fred Huyck	Springfield, Mass.	Sept. 6	8 29⅗
12 miles	Fred Huyck	Springfield, Mass.	Sept. 6	9 15⅗
13 miles	Fred Huyck	Springfield, Mass.	Sept. 6	10 2⅘
14 miles	Fred Huyck	Springfield, Mass.	Sept. 6	10 50⅕
15 miles	Fred Huyck	Springfield, Mass.	Sept. 6	11 36⅘
16 miles	Fred Huyck	Springfield, Mass.	Sept. 6	12 23⅕
17 miles	Fred Huyck	Springfield, Mass.	Sept. 6	13 12⅕
18 miles	Fred Huyck	Springfield, Mass.	Sept. 6	13 58⅘
19 miles	Fred Huyck	Springfield, Mass.	Sept. 6	14 44⅘
20 miles	Fred Huyck	Springfield, Mass.	Sept. 6	15 31⅕
21 miles	Fred Huyck	Springfield, Mass.	Sept. 6	16 17⅕
22 miles	Fred Huyck	Springfield, Mass.	Sept. 6	17 4⅖
23 miles	Fred Huyck	Springfield, Mass.	Sept. 6	19 3
24 miles	Fred Huyck	Springfield, Mass.	Sept. 6	19 53
25 miles	Fred Huyck	Springfield, Mass.	Sept. 6	20 54
30 miles	Fred Huyck	Springfield, Mass.	Sept. 6	25 14⅖
35 miles	Fred Huyck	Springfield, Mass.	Sept. 6	29 20⅖
40 miles	Fred Huyck	Springfield, Mass.	Sept. 6	33 22⅖
45 miles	Fred Huyck	Springfield, Mass.	Sept. 6	37 39
50 miles	Fred Huyck	Springfield, Mass.	Sept. 6	41 49⅕
55 miles	Fred Huyck	Springfield, Mass.	Sept. 6	46 10⅕
60 miles	Fred Huyck	Springfield, Mass.	Sept. 6	50 24⅕
65 miles	Fred Huyck	Springfield, Mass.	Sept. 6	54 32⅕
70 miles	Fred Huyck	Springfield, Mass.	Sept. 6	58 48⅖
			1908.	
75 miles	R. Stubbs ..	Birmingham, Ala.	Nov. 24	1 20 0⅕
80 miles	R. Stubbs ..	Birmingham, Ala.	Nov. 24	1 25 19⅖
85 miles	R. Stubbs ..	Birmingham, Ala.	Nov. 24	1 30 37

Distance.	Holder.	Where made.	Date.	Time.
			1908.	h. m. s.
90 miles	R. Stubbs ..	Birmingham, Ala.	Nov. 24	1 36 3
95 miles	R. Stubbs ..	Birmingham, Ala.	Nov. 24	1 42 3⅘
			1909.	
100 miles	M. J. Graves	Los Angeles, Cal.	July 18	1 27 49
200 miles	C. Spencer..	Springfield, Mass.	Oct. 1	3 55 20
300 miles	C. Gustafson	Springfield, Mass.	Oct. 1	5 48 55
400 miles	C. Gustafson	Springfield, Mass.	Oct. 1	8* 12 36
500 miles	C. Spencer..	Springfield, Mass.	Oct. 2	10 22 36
600 miles	C. Spencer..	Springfield, Mass.	Oct. 2	13 15 16
700 miles	C. Spencer..	Springfield, Mass.	Oct. 2	15 25 26
800 miles	C. Spencer..	Springfield, Mass.	Oct. 2	17 37 31
900 miles	C. Spencer..	Springfield, Mass.	Oct. 2	19 46 0
1000 miles	C. Spencer..	Springfield, Mass.	Oct. 2	22 20 59

Time.	Holder.	Where made.	Date.	Distance.
			1909.	mls. yds.
1 hour	Fred Huyck	Springfield, Mass.	Sept. 6	71 620
2 hours	M. J. Graves	Los Angeles, Cal.	July 18	134 880
3 hours	C. Spencer..	Springfield, Mass.	Oct. 1	145 587
4 hours	C. Spencer..	Springfield, Mass.	Oct. 1	204 587
5 hours	C. Gustafson	Springfield, Mass.	Oct. 1	246 1174
6 hours	C. Gustafson	Springfield, Mass.	Oct. 1	300 1174
7 hours	C. Gustafson	Springfield, Mass.	Oct. 1	333 1174
8 hours	C. Gustafson	Springfield, Mass.	Oct. 2	388 1174
9 hours	C. Gustafson	Springfield, Mass.	Oct. 2	441 —
10 hours	C. Spencer..	Springfield, Mass.	Oct. 2	482 —
11 hours	C. Spencer..	Springfield, Mass.	Oct. 2	512 —
12 hours	C. Spencer..	Springfield, Mass.	Oct. 2	559 587
13 hours	C. Spencer..	Springfield, Mass.	Oct. 2	585 —
14 hours	C. Spencer..	Springfield, Mass.	Oct. 2	641 587
15 hours	C. Spencer..	Springfield, Mass.	Oct. 2	677 587
16 hours	C. Spencer..	Springfield, Mass.	Oct. 2	730 —
17 hours	C. Spencer..	Springfield, Mass.	Oct. 2	767 587
18 hours	C. Spencer..	Springfield, Mass.	Oct. 2	812 587
19 hours	C. Spencer..	Springfield, Mass.	Oct. 2	862 587
20 hours	C. Spencer..	Springfield, Mass.	Oct. 2	911 —
21 hours	C. Spencer..	Springfield, Mass.	Oct. 2	945 587
22 hours	C. Spencer..	Springfield, Mass.	Oct. 2	986 1174
23 hours	C. Spencer..	Springfield, Mass.	Oct. 2	1035 1174
24 hours	C. Spencer..	Springfield, Mass.	Oct. 2	1093 1151

PROFESSIONAL RECORDS.

Distance.	Holder.	Where made.	Date.	Time.
			1905.	h. m. s.
1 kilo	H. Cissac ..	Blackpool, Eng.	July 27.	0 25⅗
*1 kilo	H. Cissac ..	Blackpool, Eng.	July 27	0 35
			1908.	
*1 mile	J. Derosier	Clifton, N.J.	July 26	1 2
			1908.	
1 mile	J. Derosier	Springfield, Mass.	July 31	0 43⅕
2 miles	J. Derosier	Springfield, Mass.	Sept. 18	1 32
3 miles	J. Derosier	Springfield, Mass.	Sept. 18	2 20
4 miles	J. Derosier	Springfield, Mass.	Sept. 18	3 7⅘
5 miles	J. Derosier	Springfield, Mass.	Sept. 18	3 55⅗
6 miles	J. Derosier	Springfield, Mass.	Sept. 18	4 45
7 miles	J. Derosier	Springfield, Mass.	July 31	5 34

Distance.	Holder.	Where made.	Date.	Time.
			1909.	h. m. s.
8 miles	J. Derosier	Springfield, Mass.	Sept. 18	6 20⅖
9 miles	J. Derosier	Springfield, Mass.	Sept. 18	7 8⅖
10 miles	J. Derosier	Springfield, Mass.	Sept. 18	7 56⅖
11 miles	J. Derosier	Springfield, Mass.	Sept. 18	8 45
12 miles	J. Derosier	Springfield, Mass.	Sept. 18	9 33⅗
13 miles	J. Derosier	Springfield, Mass.	Sept. 18	10 21⅗
14 miles	J. Derosier	Springfield, Mass.	Sept. 18	11 11⅕
15 miles	J. Derosier	Springfield, Mass.	Sept. 18	12 0
16 miles	J. Derosier	Springfield, Mass.	Sept. 18	12 47⅘
17 miles	J. Derosier	Springfield, Mass.	July 31	13 42
18 miles	J. Derosier	Springfield, Mass.	July 31	14 30⅕
19 miles	J. Derosier	Springfield, Mass.	July 31	15 19⅕

*From a standing start. (Under the rules the only standing start records recognised are those at distances of 1 mile and 1 kilometre; all others shall be timed from a flying start.)

PROFESSIONAL RECORDS (continued).

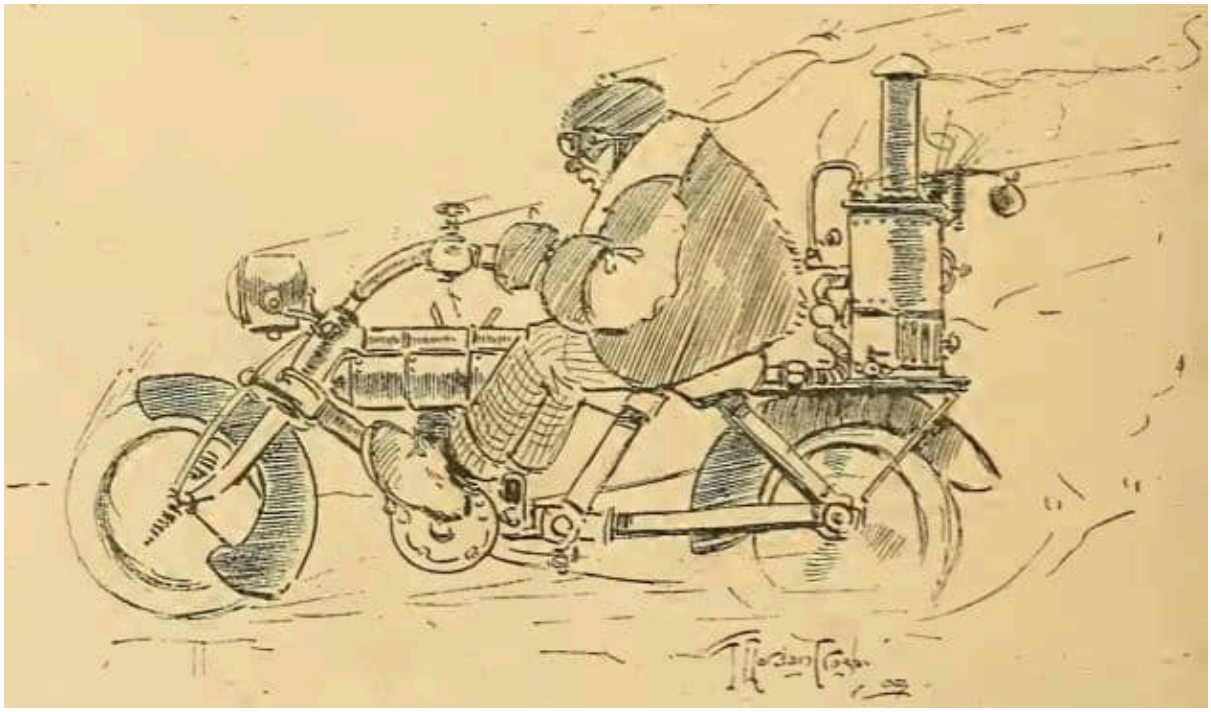
Distance.	Holder.	Where made.	Date.	Time.
			1909.	h. m. s.
20 miles	J. Derosier	Springfield, Mass.	July 31	16 8⅘
21 miles	J. Derosier	Springfield, Mass.	July 31	16 57⅗
22 miles	J. Derosier	Springfield, Mass.	July 31	17 45⅖
23 miles	J. Derosier	Springfield, Mass.	July 31	18 34⅕
24 miles	J. Derosier	Springfield, Mass.	July 31	19 24
25 miles	J. Derosier	Springfield, Mass.	July 31	20 13⅘
30 miles	J. Derosier	Los Angeles, Cal.	April 18	29 41
35 miles	J. Derosier	Los Angeles, Cal.	April 18	35 23⅘
40 miles	J. Derosier	Los Angeles, Cal.	April 18	38 55⅕
45 miles	J. Derosier	Los Angeles, Cal.	April 18	43 29
50 miles	J. Derosier	Los Angeles, Cal.	April 18	48 21
55 miles	J. Derosier	Los Angeles, Cal.	April 18	53 14
60 miles	J. Derosier	Los Angeles, Cal.	April 18	57 51
65 miles	J. Derosier	Los Angeles, Cal.	April 18	1 4 27⅘
70 miles	J. Derosier	Los Angeles, Cal.	April 18	1 9 7⅕
75 miles	J. Derosier	Los Angeles, Cal.	April 18	1 13 46
80 miles	J. Derosier	Los Angeles, Cal.	April 18	1 18 34⅕
85 miles	J. Derosier	Los Angeles, Cal.	April 18	1 23 25⅗
90 miles	J. Derosier	Los Angeles, Cal.	April 18	1 28 18⅕
95 miles	J. Derosier	Los Angeles, Cal.	April 18	1 33 12⅖
100 miles	J. Derosier	Los Angeles, Cal.	April 18	1 37 59⅗
200 miles	H. Martin ..	Canning Town, E.	Feb. 15	4 5 54⅕
300 miles	H. A. Collier	Canning Town, E.	May 5	6 6 28
400 miles	H. A. Collier	Canning Town, E.	May 5	9 6 25⅘

Time.	Holder.	Where made.	Date.	Distance.
			1908.	mls. yds.
1 hour	C. R. Collier	Brooklands, Eng.	Oct. 8	68 1380
			1909.	
2 hours	H. V. Colver	Brooklands, Eng.	Oct. 9	118 719
3 hours	H. Martin	Brooklands, Eng.	Nov. 22	165 836
4 hours	H. Martin	Canning Town, E.	Feb. 15	194 1320
5 hours	H. A. Collier	Canning Town, E.	May 5	245 640
6 hours	H. A. Collier	Canning Town, E.	May 5	294 800
7 hours	H. A. Collier	Canning Town, E.	May 5	326 640
8 hours	H. A. Collier	Canning Town, E.	May 5	364 1480
9 hours	H. A. Collier	Canning Town, E.	May 5	396 80
10 hours	H. A. Collier	Canning Town, E.	May 5	411 —
11 hours	H. A. Collier	Canning Town, E.	May 5	443 1402
12 hours	H. A. Collier	Canning Town, E.	May 5	471 784
13 hours	H. A. Collier	Canning Town, E.	May 6	506 1260
14 hours	H. A. Collier	Canning Town, E.	May 6	508 —
15 hours	H. A. Collier	Canning Town, E.	May 6	522 1500
16 hours	H. A. Collier	Canning Town, E.	May 6	566 —
17 hours	H. A. Collier	Canning Town, E.	May 6	599 1760
18 hours	H. A. Collier	Canning Town, E.	May 6	611 880
19 hours	H. A. Collier	Canning Town, E.	May 6	648 586
20 hours	H. A. Collier	Canning Town, E.	May 6	680 —
21 hours	H. A. Collier	Canning Town, E.	May 6	690 586
22 hours	H. A. Collier	Canning Town, E.	May 6	725 1390
23 hours	H. A. Collier	Canning Town, E.	May 6	720 940
24 hours	H. A. Collier	Canning Town, E.	May 6	775 1340

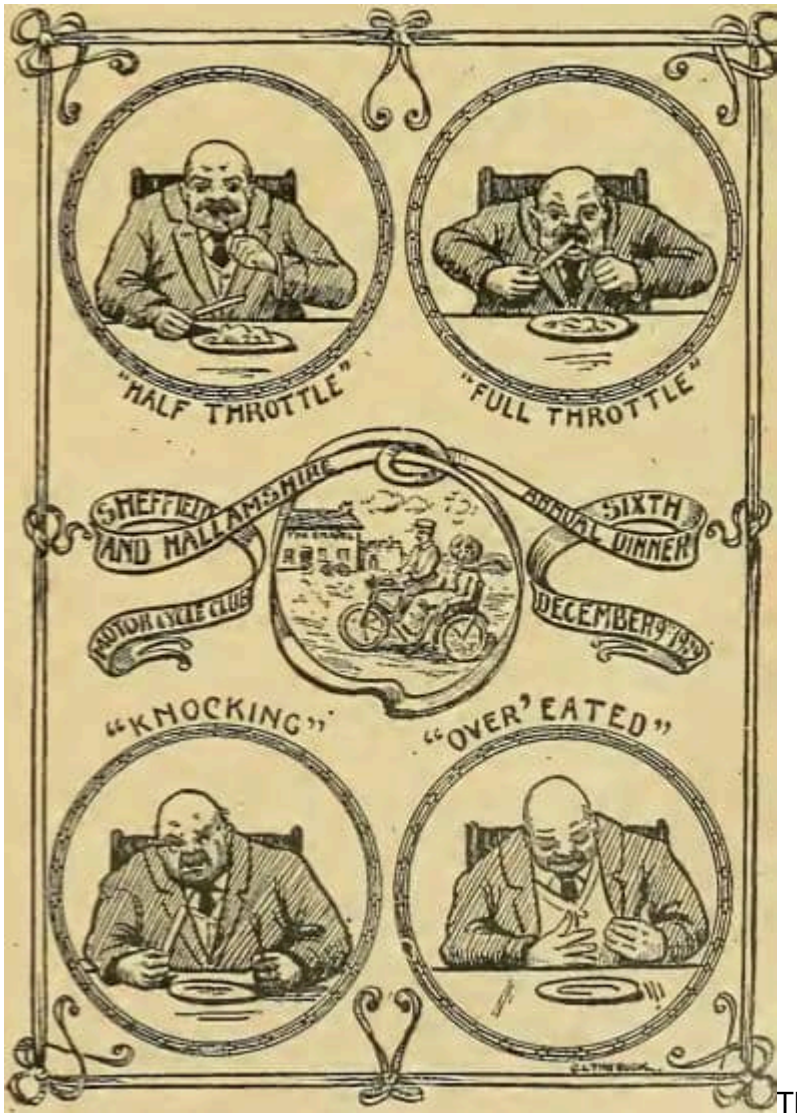
STRAIGHTAWAY RECORDS—AMATEUR

Distance.	Holder.	Where made.	Date.	Time.
			1909.	m. s.
1 kilo	W. Goerke ..	Daytona, Fla. ..	Mar. 25	0 27⅖
1 mile	E. Stubbs ..	Daytona, Fla. ..	Mar. 25	0 43⅖
5 miles	W. Goerke ..	Daytona, Fla. ..	Mar. 31	3 30⅘

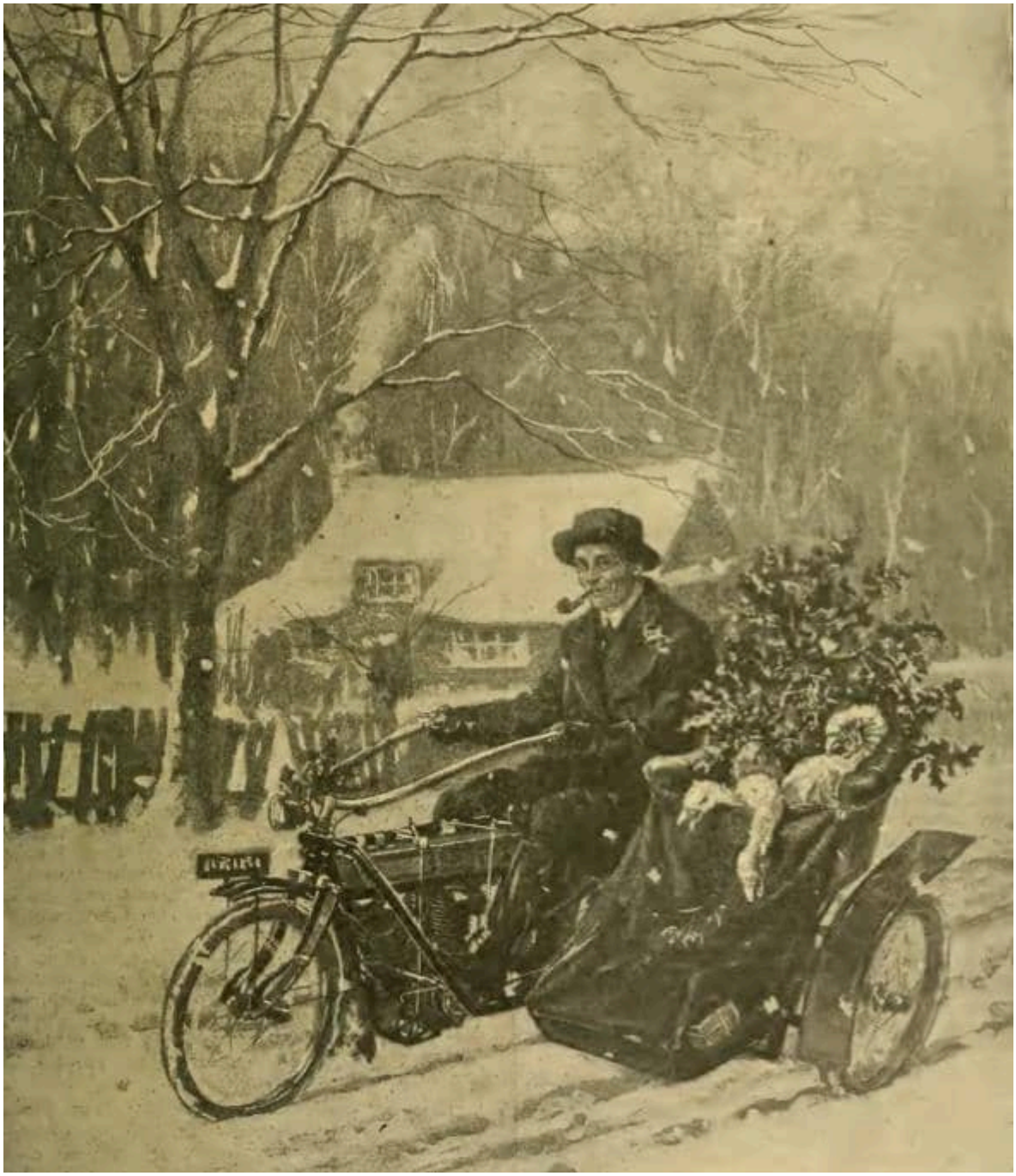
OK that sums up motor cycling in 1909; we'll conclude with some charming Christmas ephemera, Christmas greetings from the Green'Un and a selection of contemporary ads.



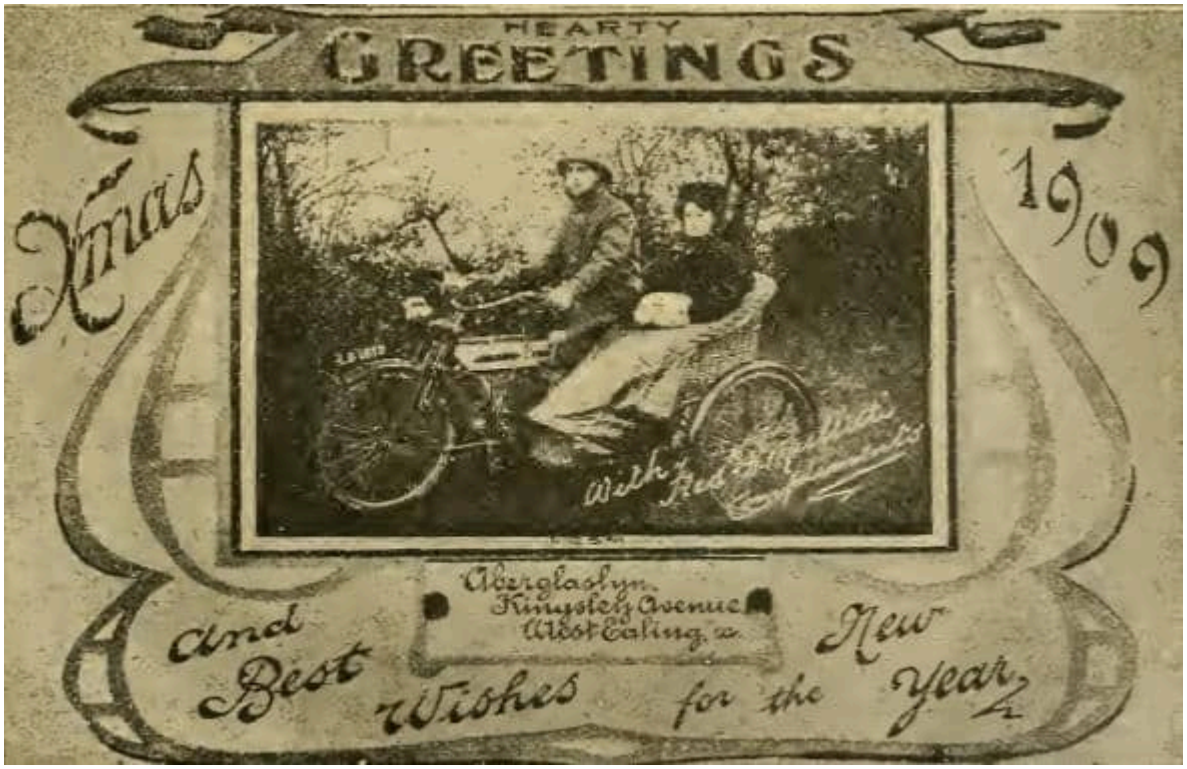
Anything to beat the winter chill—note the heated handlebar.



Themenu card for the Sheffield and Hallamshire MCC's sixth annual dinner was designed by by a teenage member.

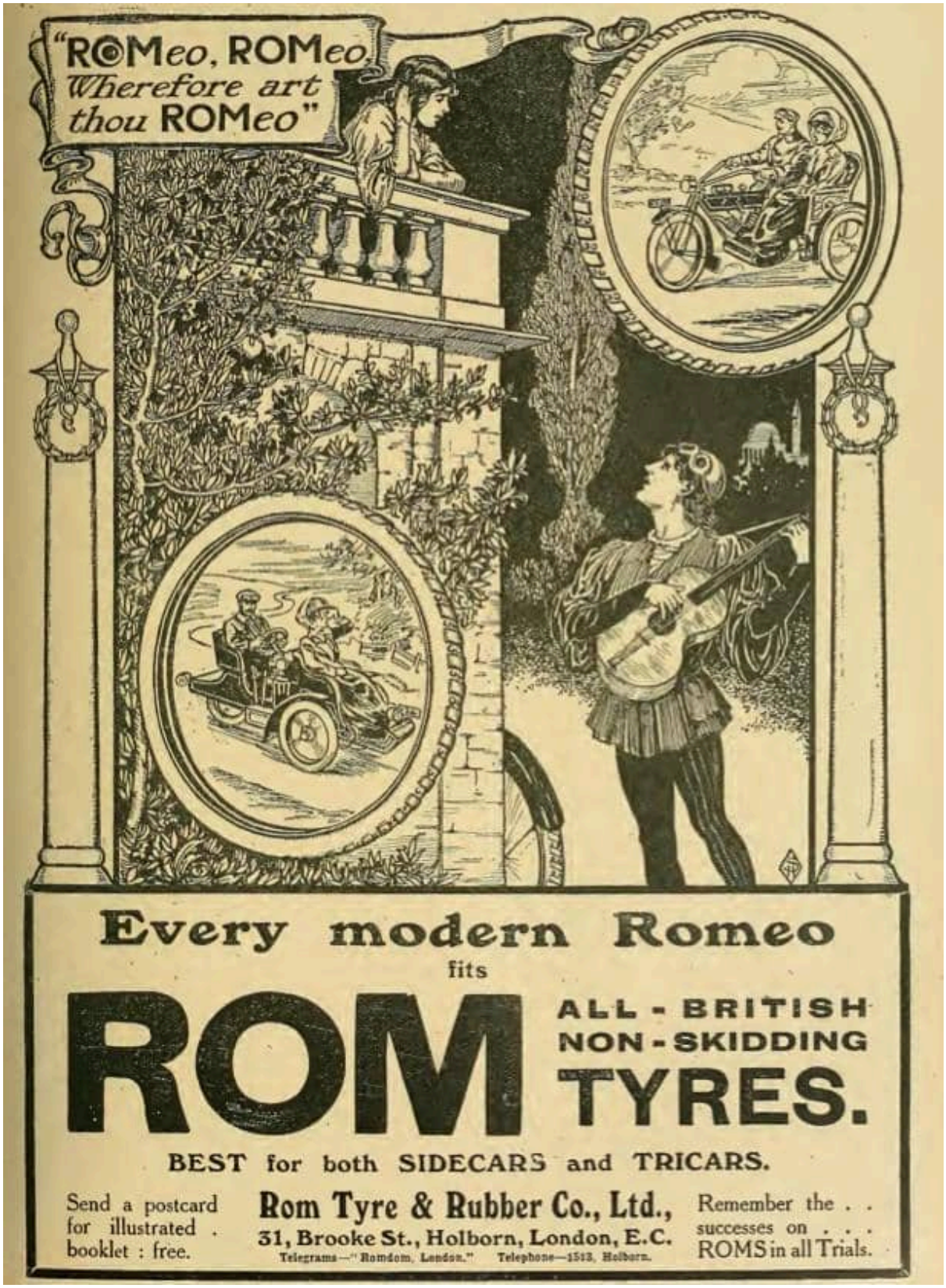


This full-page Christmas illustration in the Blue 'Un was simply captioned: "Seasonable passengers." It has to be said, that goose has seen better days.

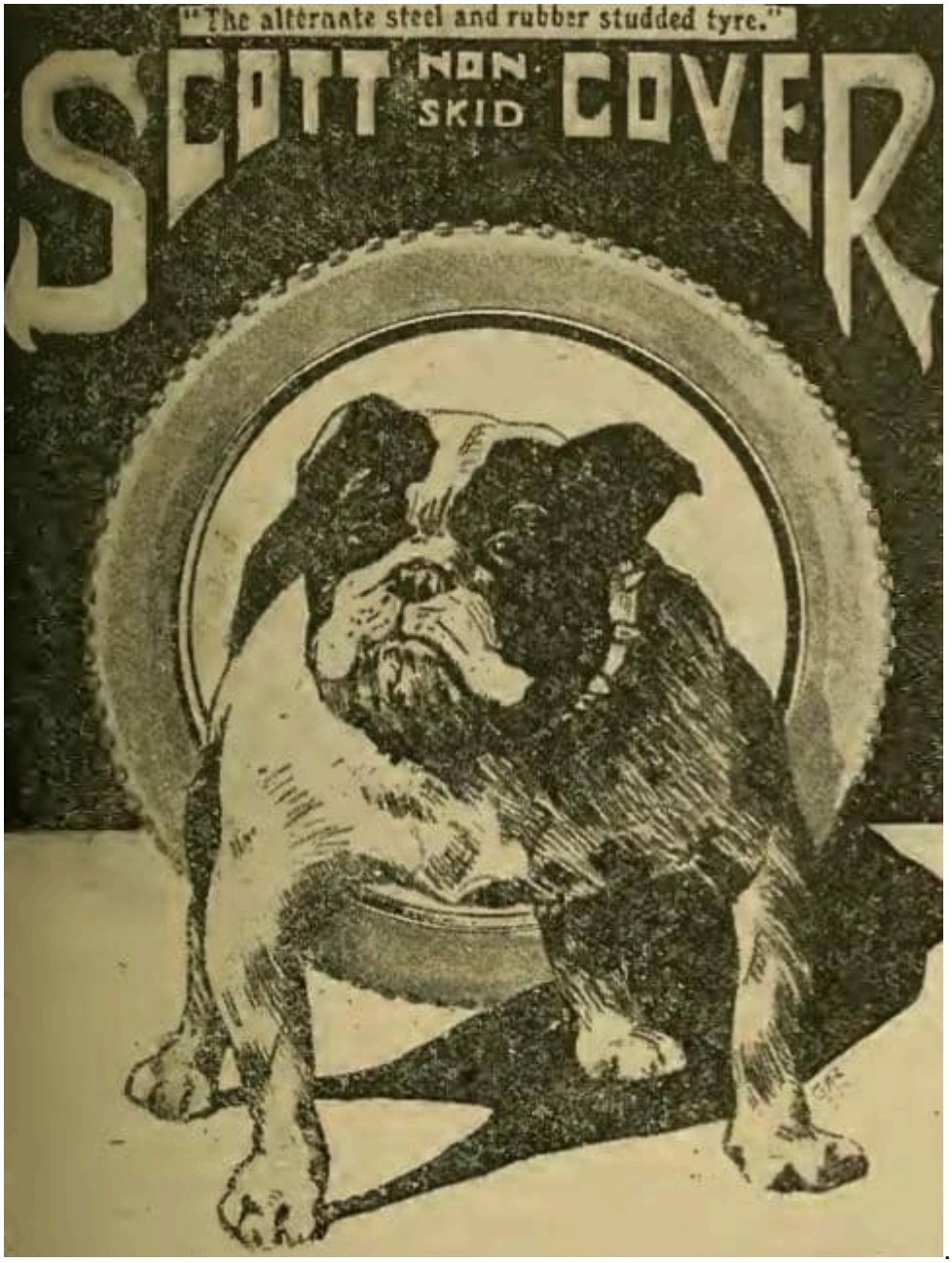


“Many riders prefer motor cycle subjects in connection with their Christmas greeting cards, and we annually receive very tasteiul specimens from our readers. The picture postcard illustrated is one sent by FH Hullett, hon sec of the Western District MC (London).”

“COMPLIMENTS OF THE SEASON. The Editor and staī take this □ðttingopportunity of wishing all readers of The Motor Cycle a Happy Christmas and a Prosperous New Year. As in past years a portion of the presesnt issue is devoted to the lighter side of motor cycling. The article, ‘A Peep into the Future’, cannot fail to interest all at this season of the year.” You’ll ïnd this article in the 1909 Features section.



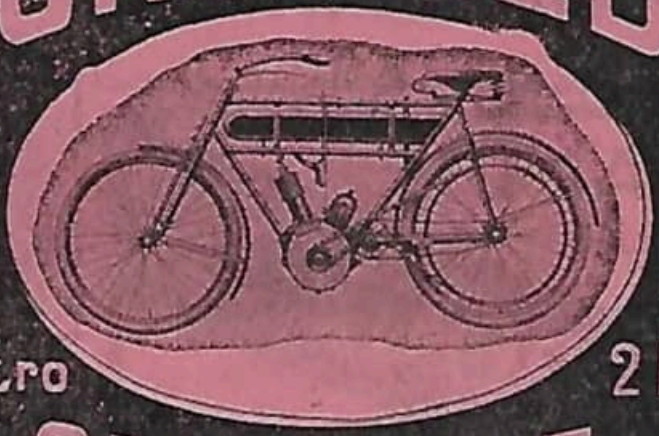
Theyjust don’t do ads like this nowadays…



…andthis was too cute to leave out.

Does a speed of two miles per hour interest you ?
If so, write for particulars of the
1910 Mabon Multiple Disc Clutch
with new pattern adjustable pulley
Price £3 : 3 : 0 Ready to fit Triumphs, Rex, Minerva, N.S.U., Fafnir, Brown, and Kerry.
SINGLES OR TWINS.
MABON MOTOR WORKS, 54, High Rd., North Finchley, N.
Agents—The Service Co., High Holborn, W.C.
A major step forward was the ability to start a bike without stepping forward. Anyonewho's limped a bike home without a clutch will appreciate how devices like the Mabon will have transformed the motor cyclijng experience.

MAGNAT-DEBON



CYCLES

Direct-Rétro

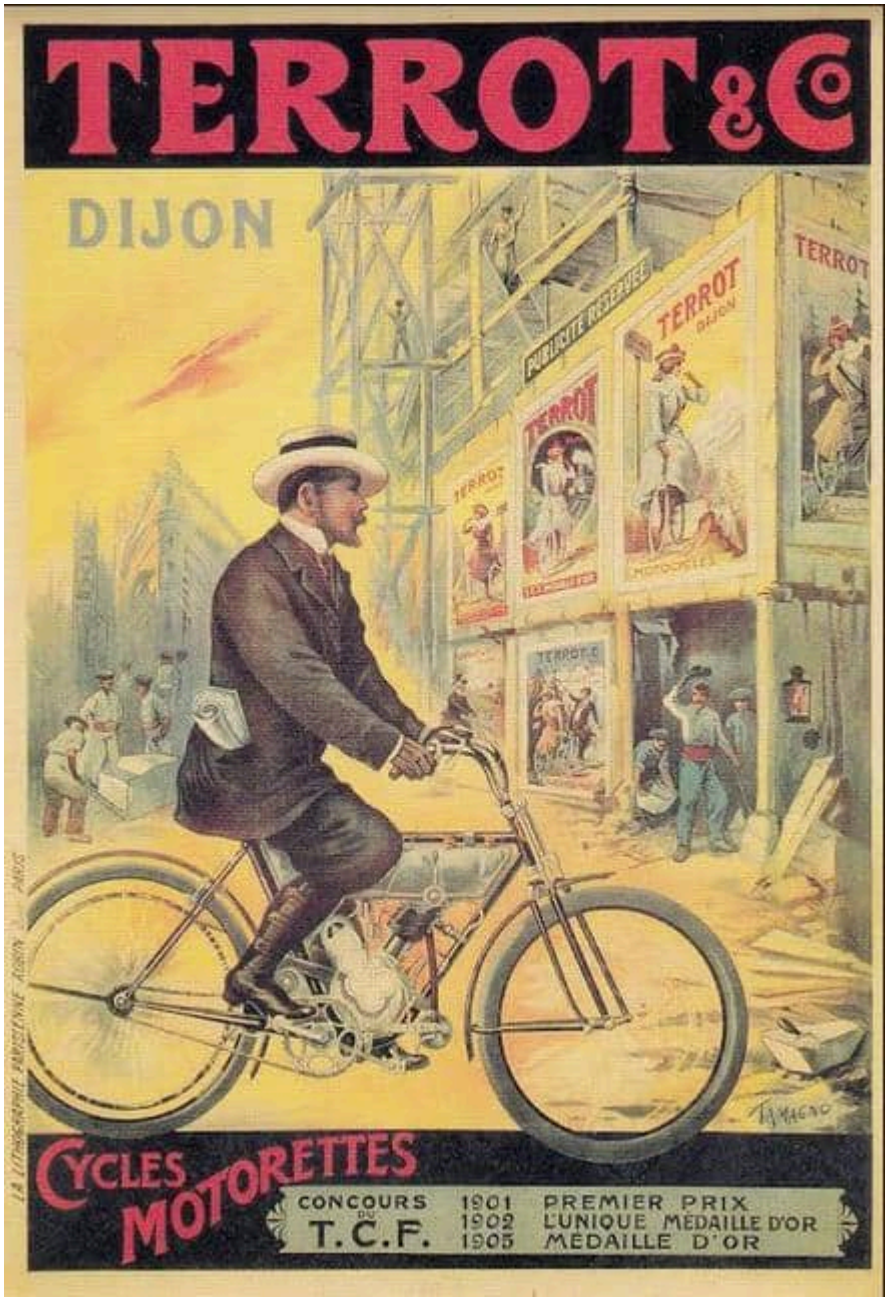
MÉDAILLE d'OR du T.C.F.

MOTOS

2 HP et 2 HP ½

LES SEULES PRATIQUES

GRENOBLE


TERROT & Cie
DIJON
PUBLICITÉ RÉSERVÉE
TERROT
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TERROT
CYCLES MOTORETTES
CONCOURS DU T.C.F.
1901 PREMIER PRIX
1902 L'UNIQUE MÉDAILLE D'OR
1905 MÉDAILLE D'OR

This is part of an ad for Maudes Motor Mart 'of Halifax and London'; the □ðrmwhichwouldlater donate the trophy for motor cycle reliability stunts that bears its name (that's the Maudes Trophy, in case you were having trouble working it out). It indicates the number of agencies the □ðrmheldandis a clever representation of many of the leading marques of the era. All would fade away, but by my count four names were revived.

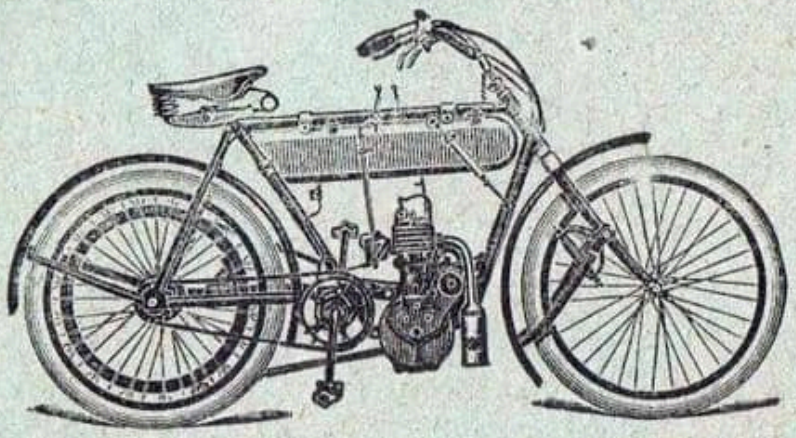
BICICLETTE · MOTOCICLETTE · AUTOMOBILI
ALCYON
"Alcyon"
MATERIALE PER COSTRUZIONE
Rappresentanza Generale ed Esclusiva per tutta l'Italia :
CARLO ZUCCHI & C. - Corso Indipendenza, 16 - MILANO

La nouvelle Moto-Légère ALCYON

2 HP. - 40 kilos

avec magnéto BOSCH et soupapes commandées

FERA FUREUR CETTE SAISON !



Elle est robuste ; elle est régulière ; elle monte toutes les côtes

LA PERFECTION ABSOLUE

ALCYON, 4 et 6, boulevard Bourdon, à Neuilly-sur-Seine

En vente à PARIS : 32, avenue de la Grande-Armée et chez les principaux marchands de Cycles

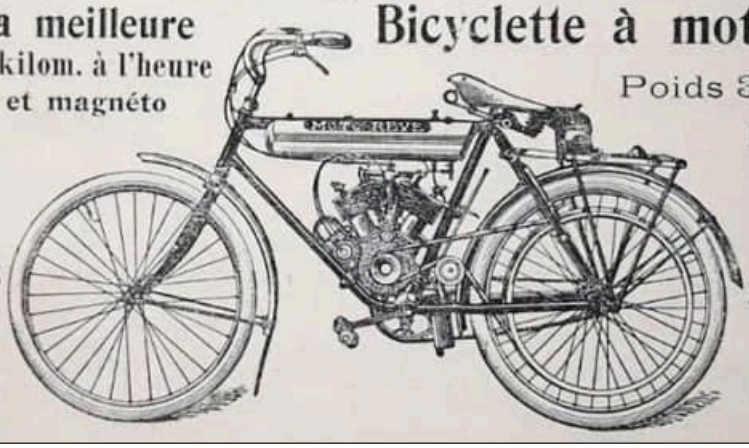
LA MOTO=RÊVE

MÉDAILLE D'OR du Touring-Club de France en 1908 et 1909

Reconnue la meilleure
Vitesse 6 à 60 kilom. à l'heure
2 cylindres et magnéto

Bicyclette à moteur léger
Poids 35 kg.
Force 2 HP

DOUCE
SIMPLE



ROBUSTE
SILENCIEUSE

GENÈVE **SUISSE**

Le seul dispositif moteur amovible

LA "MOTOSACOCHE"

BREVETÉE EN TOUS PAYS

La seule machine pratique pour la ville et le grand tourisme.
PARCE QUE : *Simple, Légère, Souple, Silencieuse, Économique.*

Dans les divers concours d'endurance et courses de côte, auxquels elle a pris part dès 1901, la **Motosacoche** s'est toujours classée au 1er rang, battant toutes les grosses Motocyclettes des grandes marques.

1901, Course de Côte **Trélex-St-Cergues,** *deux 1ers Prix. — 1902,* **St-Pétersbourg,** *Gde Méd. d'Or ;* **Vienne.** *Méd. d'Or. — 1903, Concours* **1,000 kilomètres,** *deux 1ers Prix. — 1904,* **Milan-Nice-Milan,** *deux 1ers Prix ; Course de Côte,* **Cologny,** *1er Prix ; Course de Côte* **Trélex-St-Cergues,** *1er Prix.*

H. et A. Dufaux et Cie, à Genève : **10, rue des Caroubiers (Acacias)**
DÉPÔT A PARIS : **247, boulevard Pereire (Porte-Maillot).**

et adaptable instantanément

R-S

Saves Time and Horses

Always Ready and Reliable

A man and an "R-S" Motorcycle will get most anywhere and back while a team's getting started. The "R-S" eats up the miles; eliminates distance; silent, safe, sure, durable. Immense power under immediate control. Costs little to buy and practically nothing to maintain.

R. S. Motorcycle

"Built and Tested in the Mountains"

The lightest, simplest, most powerful little motor ever built into a motorcycle. The only single cylinder motorcycle that ever climbed Wilkes-Barre mountain.

Write for catalogue. Agents wanted.

READING STANDARD CO.
412 Water St., Reading, Pa.
Makers Renowned Reading Standard Bicycles

READING STANDARD

R-S Motorcycles

1909 MODELS

The Most Advanced Quality Line For the Progressive Dealer

BELT AND CHAIN DRIVE MODELS.
MAGNETO OR BATTERY EQUIPMENT.

Loop frame models,
Diamond frame models,
Delivery van models,
Tri-car, chair car and tandem models.

Single and Twin Mechanical Intake Valve Motorcycles from 3 to 7½ H. P. A line full of new and exclusive features, improvements and refinements. The Motorcycle for universal use, Economical, Powerful, Simple,—in short "AMERICA'S BEST."

Our Manufacturing Policy—Quality above everything else.
Our Selling Policy—Protection to our selling agents.

WE LOOK FOR "LIVE WIRES" WHO WANT THE BEST. WRITE US.

Reading Standard Co., Reading, Pa.

MOTOR BICYCLE

YALE 3½ H. P. 1909 MOTOR CYCLES—$200

Made for men with good red blood.

An American betterment of the finest foreign models. Easy running, powerful, reliable, swift. Its equal at the price does not exist today.

In this great factory—the largest in the United States—we build the famous

YALE AND SNELL BICYCLES

acknowledged the standard of America, and sole makers of **Hussey Handle Bars**

THE CONSOLIDATED PACKAGE CAR—$100

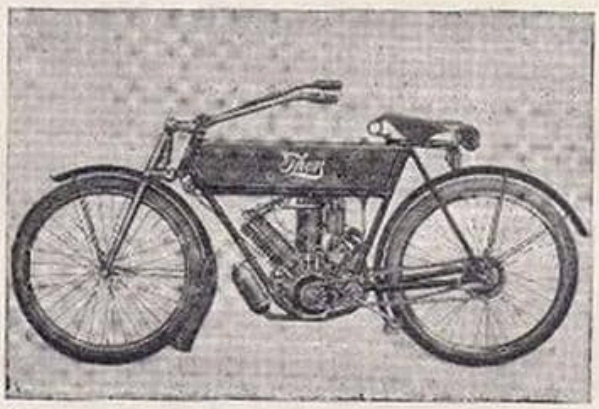
Solves the problem of small deliveries at a profit. A money saver for every sort of retail business. Get posted. Write at once for FREE CATALOGUE naming the vehicle you wish to know about.

THE CONSOLIDATED MFG. CO. 1728 Fernwood Ave. TOLEDO, O., U. S. A.

Thor WINS The ONLY Perfect Score

Beats All Comers in Open Contest

The Severest Test of the Season



The Chicago Motor Cycle Club's Third Annual Endurance Run—two days, 414 miles, and the

Elimination Contest

three and one-half days, 702 miles, in sand, mud and water. NINETEEN ENTRIES, EIGHT OTHER MAKES. Such a machine will give satisfaction.

The Thor is a live line for an agent.

Aurora Automatic Machinery Company

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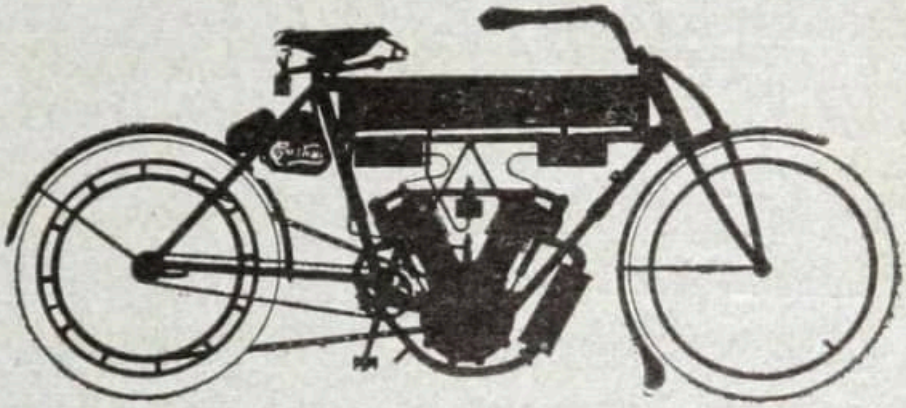
CURTISS MOTORCYCLES



The machines of quality. Big, speedy, powerful, perfectly balanced, vibrationless, roller bearing motors. The only correct frame and fork design. To sum up

It is the nearest approach to Mechanical Perfection ever attained in a Motorcycle

Send stamps for catalog

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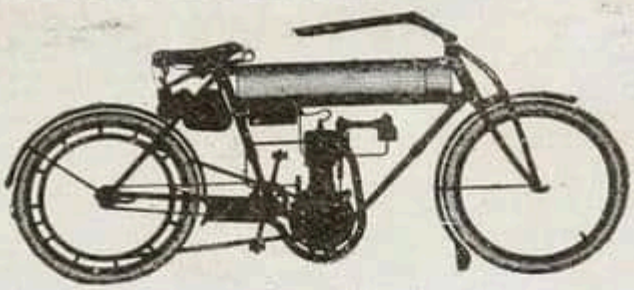
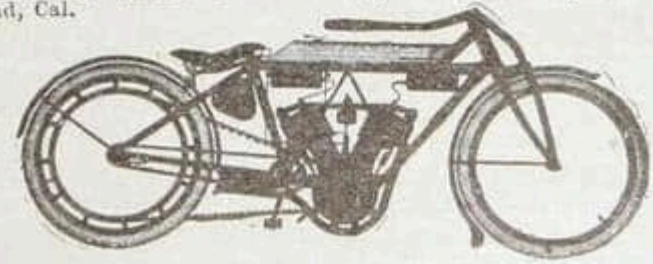


Don't Guess Which Motorcycle to Buy! Investigate Thoroughly AND FIND OUT

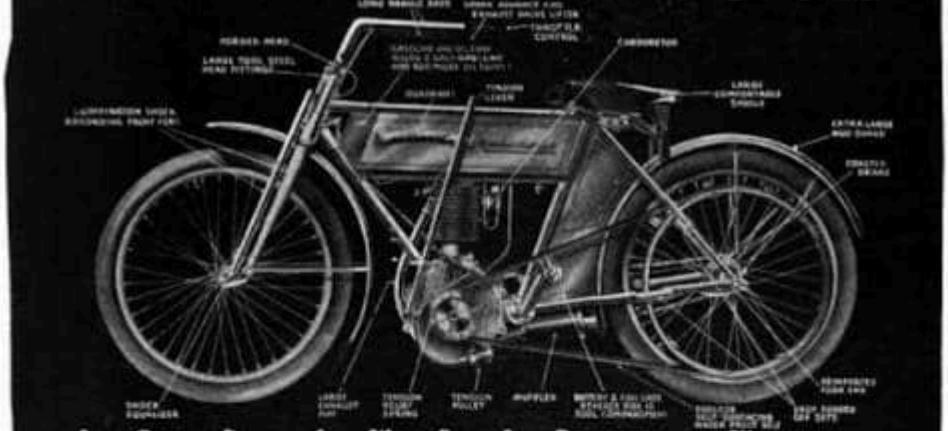
Why Roller Bearings are better than bronze.
Why the Curtiss "V" Belt Transmission, with 6 years of experience behind it, is the best in the world.
Why the Curtiss Frame and Fork Construction has proven superior to all other types.
Why all Curtiss engines develop more power and speed for the same cubic capacity than any other engines in the world.
Why we won the only Diamond Medal in the 1907 F. A. M. Endurance Run and Highest Awards in both classes of the 1908 F. A. M. Endurance Run.
Why we hold the World's Official 1 and 10 mile records.

Then write us and ask for Catalog C, describing the famous "World's Record" Motorcycles. Most complete line ever offered. 1 to 3 cylinders, 3 to 10 horse power. Side Cars, Delivery Vans, etc. Some good territory still open. Write today. **Herring-Curtiss Co.**, Hammondsport, N.Y. Successors to The G. H. Curtiss Mfg. Co.

New York Distributors, "Curtiss Motorcycle Co.," 1203 Bedford Avenue, Brooklyn, N.Y. Pacific Coast Distributor, G. A. Faulkner, 351 12th St Oakland, Cal.



THE EXCELSIOR AUTO-CYCLE



LOW SADDLE POSITION-LONG WHEEL BASE-LOW DISPOSITION OF WEIGHT

A Few of the Many Points Wherein

THE EXCELSIOR EXCELS

A powerful, silent, vibrationless motor that is big enough for the job and does not wear itself out by excessive speed to meet the overload. **A straight-line frame** that is built on scientific lines, with every point of stress properly reinforced, not merely a collection of tubing bent to dodge the motor and accessories and heavy enough to hold up by main strength and awkwardness.

A low, comfortable saddle position that lowers the center of gravity, eliminates skidding and makes the Excelsior Auto-Cycle the touring car of motor cycles. **A shock-absorbing front fork** that acts along the line of impact, that overcomes all road irregularities without jolt or jar. **A lubricating system** that places an abundant quantity of oil where it is needed and keeps it there and not on the outside of the machine or the rider.

An accessible machine, in which all parts may be reached with the least possible interference with any other part, and the wheels removed without interference with mud guards or other accessories.

Independent belt and chain adjustment, whereby both belt and chain may be kept at proper tension.

Low saddle position and free motor, enabling the rider to stop at will without stopping the motor, rest comfortably in the saddle with both feet on the ground, and proceed by merely advancing the tension lever and replacing the feet upon the pedals.

A machine that is sold at a fixed and invariable price by established dealers only, thereby protecting the buyer from depreciation in value through price-cutting by overstocked dealers or curbstone brokers.

A machine that is backed by the financial strength, factory facilities and sterling reputation of a company that has been in business since 1876.

Our new Catalog M. C. 229 gives full details. Write for it today.

EXCELSIOR SUPPLY COMPANY

233-237 RANDOLPH STREET CHICAGO, ILLINOIS

ESTABLISHED 1876

STANLEY T. KELLOGG

Eastern Distributor EXCELSIOR AUTO-CYCLES

2233 BROADWAY Write for Agency Proposition

FEATURES.

Smooth running Twin-cylinder Engine, Magneto Ignition, Fast, Light, and good on hills, Reed. design frame, giving low, comfortable riding position, Adjustable Footrests, Pedal Brake, Handlebar Control, Spring Forks, Rigd. Stand, V Belt, Direct Drive, Beaded Edge Belt-Rim, Large Tank with Gauges, Adjustable Exhaust Tappets, 2in. Motor Cycle Tyres, etc.

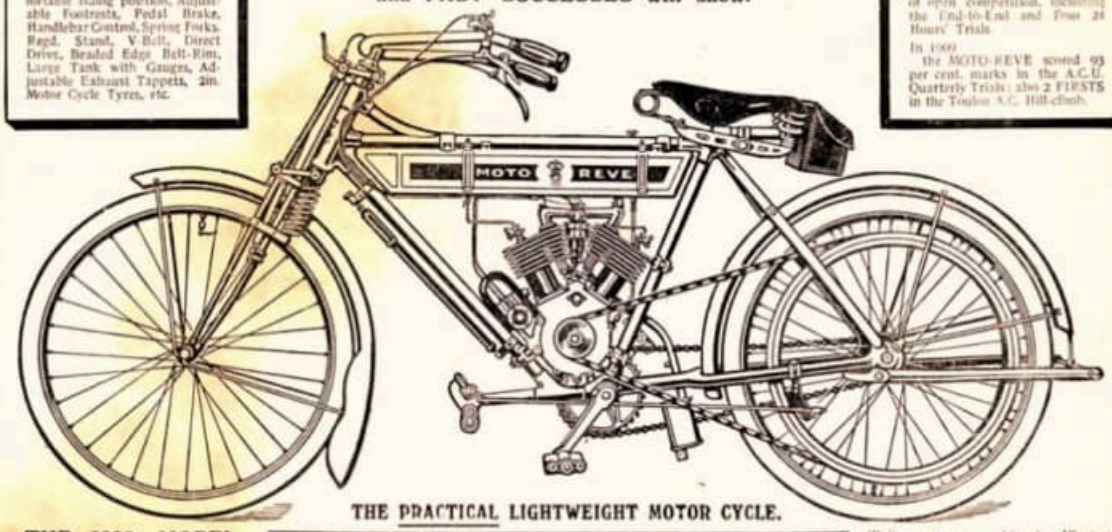
NOT A "PAPER" MACHINE

as a brief consideration of its SPECIAL FEATURES and PAST SUCCESSES will show.

SUCCESSES.

In 1906
the MOTO-REVE secured
— 40 AWARDS —
in highest possible, in all classes of open competition, including the End-to-End and Four 24 Hours' Trials.

In 1909
the MOTO-REVE scored 93 per cent. marks in the A.C.U. Quarterly Trials; also 2 FIRSTS in the Toulon A.C. Hill-climb.



THE PRACTICAL LIGHTWEIGHT MOTOR CYCLE.

THE 1909 MODEL
FINISHED
ALL GREY.
Lined Green. Belt Rim, Spokes, and Rims enamelled, saving cleaning troubles.

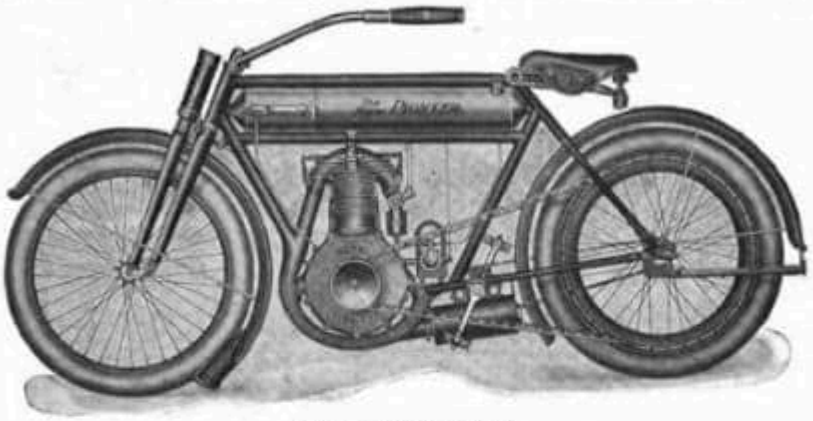
MOTO-REVE The Silent

Write a note now, asking for Illustrated List, etc., and post free on request.

The MOTO-REVE Co., Ltd.,
138-142, Gray's Inn Road,
LONDON, W.C.

In answering this advertisement it is desirable to mention "The Motor Cycle."

The ROYAL PIONEER



MOTOR SPECIFICATIONS

MOTOR: New Pioneer, 30.50 cubic inches. **POWER:** 3½ to 4½ horse.
BEARINGS: Hess-Bright Annular Ball Bearings.
VALVES IN HEAD: Absolute duplicates, with springs, etc., interchangeable, and mechanically operated by one cam. Glass window in base to show depth of oil.
MOTOR OILING SYSTEM: New, combined centrifugal and splash.

GENERAL SPECIFICATIONS

CARBURETOR: Royal Pioneer, built to our specifications by Brown & Barlow, coupled direct to motor BEHIND cylinder.
IGNITION: BOSCH MAGNETO and none other; bevel gears and shaft drive, motor to magneto.
MUFFLER: Massive but "tucked away." Silently emits cold gases.
FRAME: Contains an Expansion Chamber beneath the motor in which the gases cool before reaching the Muffler.
TANK: Pioneer brass DOUBLE torpedo, five inches round, carrying two quarts oil and two gallons gasoline. Frame designed to harmonize.
CONTROL: Complete handle-bar control of Carburetor, Magneto and Exhaust Lift, ALL ENCLOSED and "trouble proof."
HANDLE BARS: Free from unneeded curves and are stationary. Long rubber grips.
CUSHION FORKS: Pioneer type, compound springs with spring stops top and bottom.
SEAT: Persons Champion, 1909 Model. Wide, long and low.
GEARING: 4½ to one through genuine Watawata 1 inch "V" belt.
WHEELS: 26 inches, with 2½ inch tires, option of 28 inches with 2½ inch tires.
OIL PUMP: Transparent barrel; one simple operation charges motor.
WHEEL BASE: Fifty-six inches.
MUD GUARDS: Extra wide and extra long, and properly supported.
STAND: The Royal Pioneer stand is included without charge.
CRANK HANGER: Pioneer principle, adjustable fore and aft for chain and above or below stays to suit rider.
PULLEY RIM: Persons Armless indestructible steel pulley.

"Lives there the man" who does not believe the motorcycle of the future will be capable of from fifty to sixty miles per hour—forty up hill? We doubt it. Will the live man *ever* want batteries? No. But he *will* want a Bosch Magneto, a valve-in-head motor, a Hess-Bright ball bearing motor, a mechanically-operated-valve motor, a Silent machine with Watawata V Belt, a frame to take 26 inch or 28 inch wheels, separate brass tanks for oil and gasoline, adjustable crank hanger, pneumatic fork and ideal equipment, such as is found in the Royal Pioneer of to-day. See it at Booth 543 and

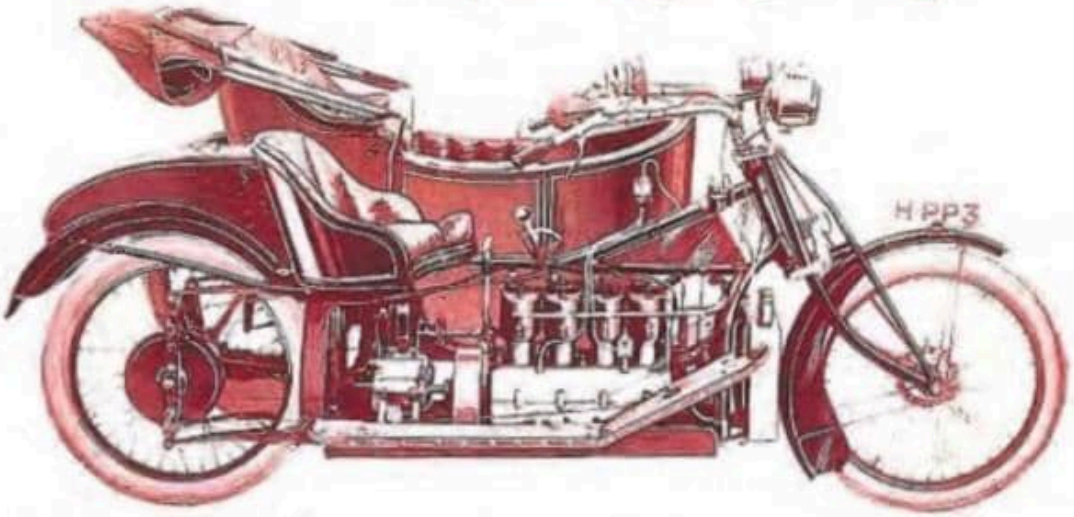
GET A CATALOGUE

Royal Motor Works, Inc., Worcester, Mass., U. S. A.

Thor THE MOTOR CYCLE Supreme

"Don't be a Trailer"

The WILKINSON Touring Motor Cycle.



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